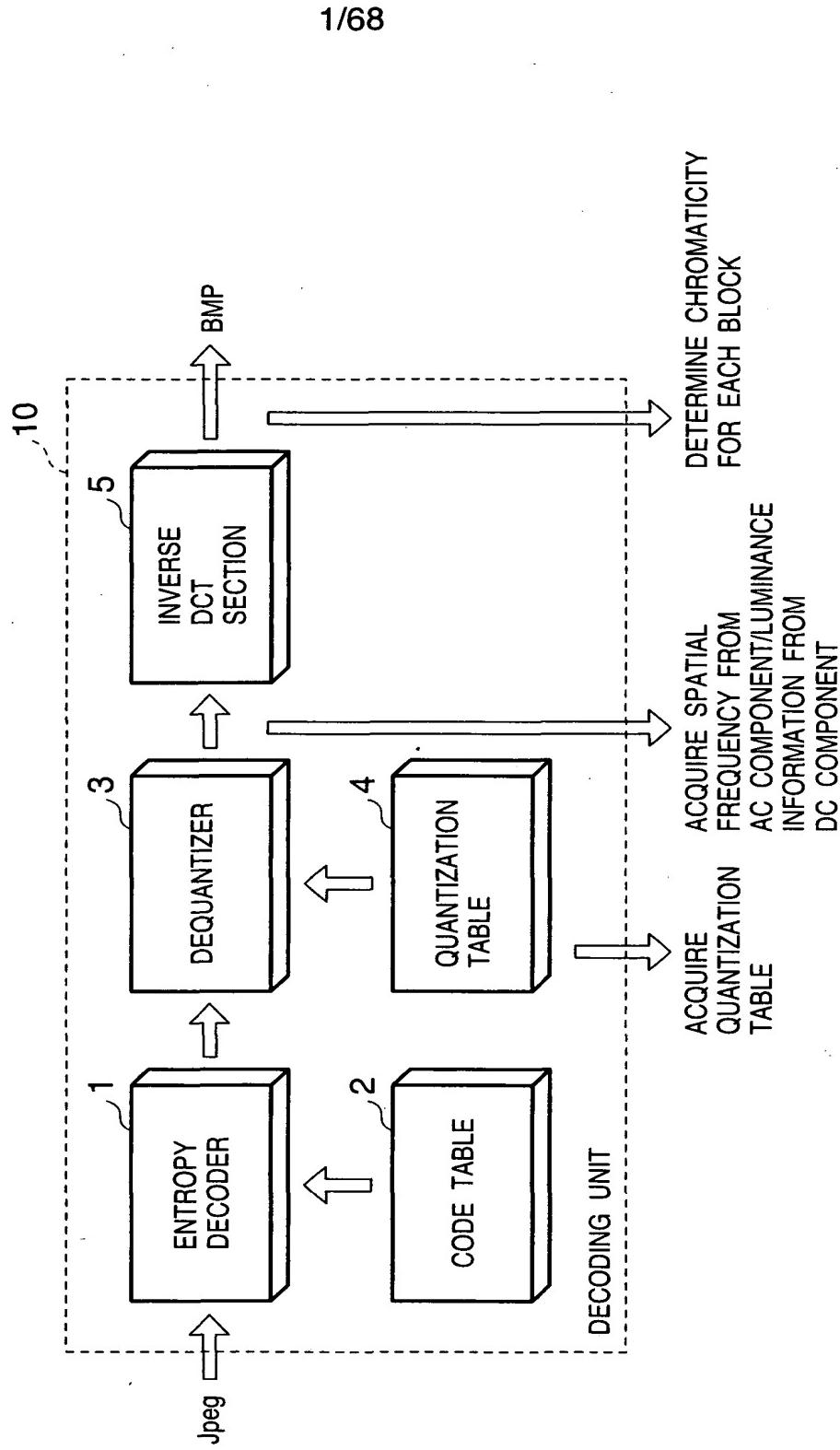
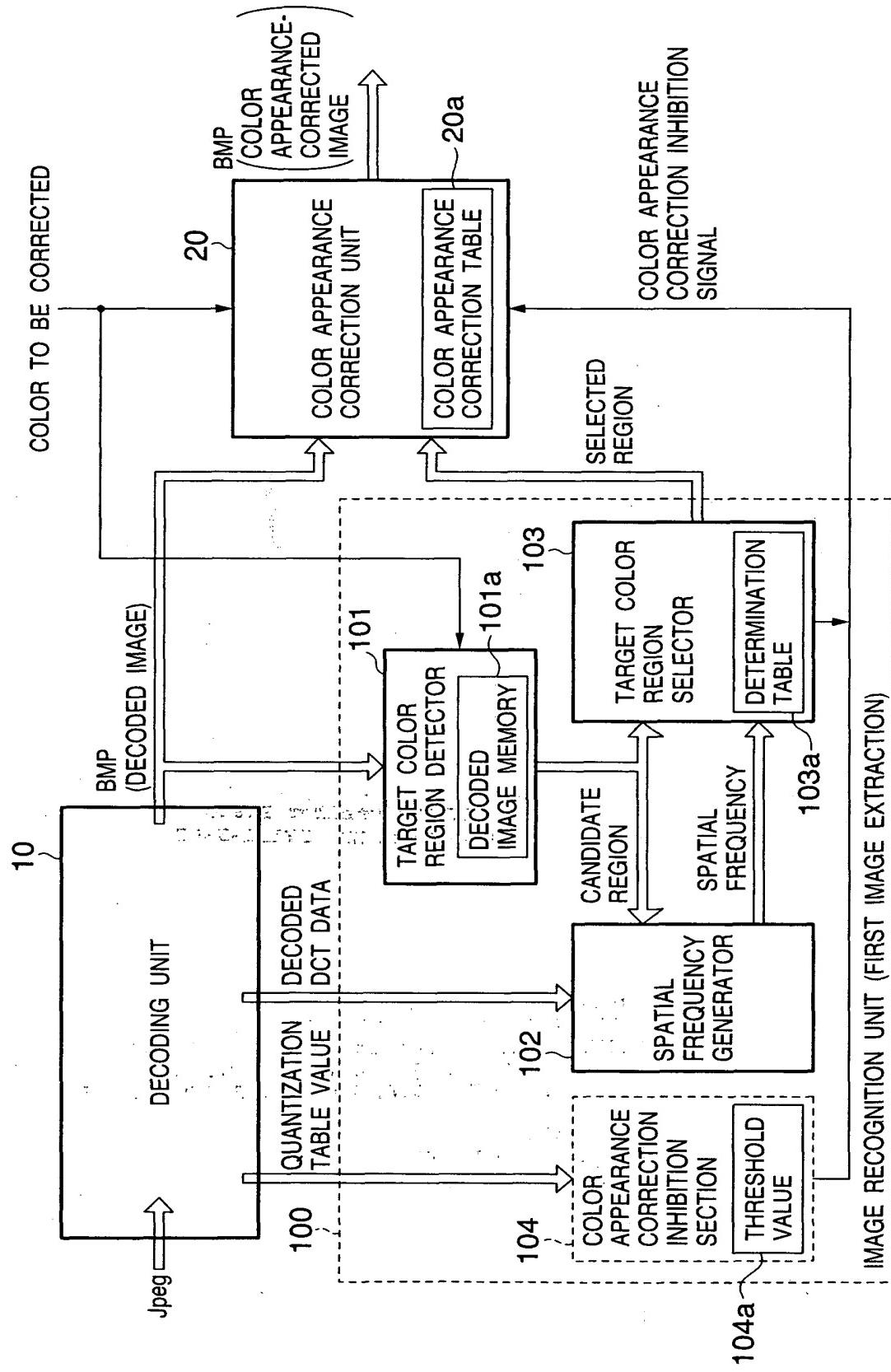


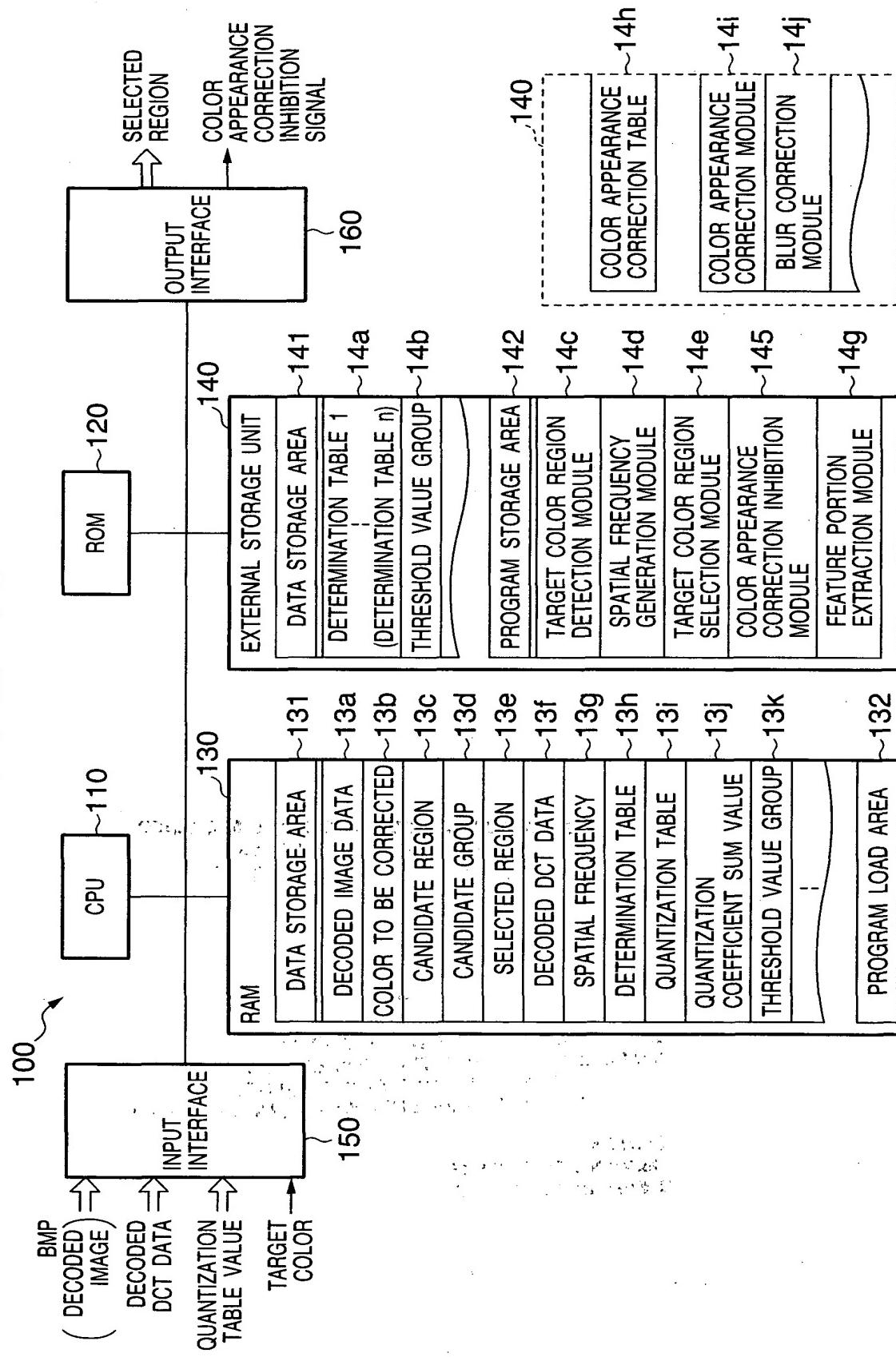
**FIG. 1A**

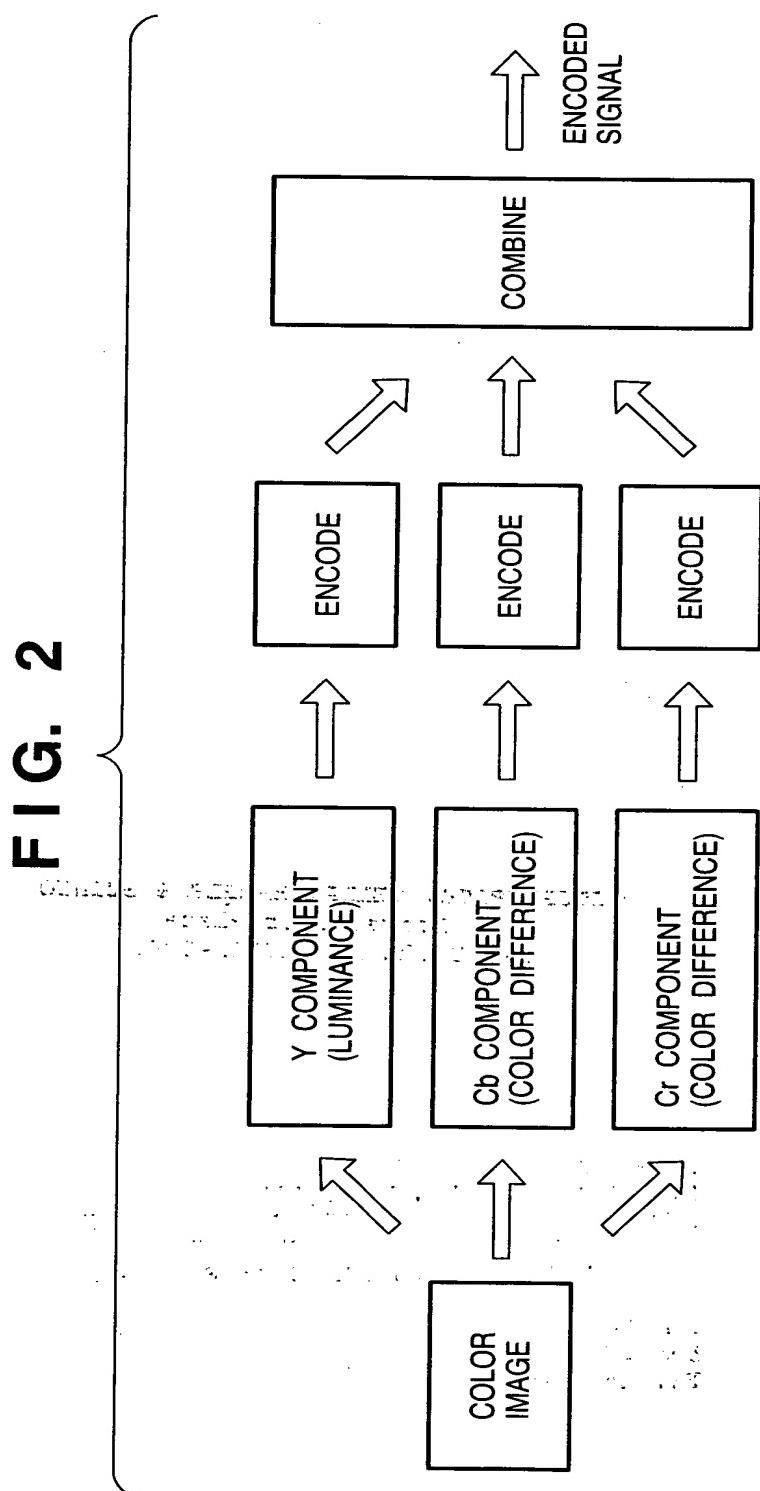


1B  
G.  
F.



**FIG. 1C**





**F I G. 3**

## 1. SEGMENT INTO 8\*8 BLOCKS

185	177	172	167	161	156	151	150
183	173	167	161	156	149	149	147
183	172	165	159	148	145	145	144
186	172	165	157	145	143	144	142
194	174	159	150	144	142	140	138
199	177	160	152	142	140	149	147
197	178	158	150	140	132	127	126
190	170	153	145	135	129	112	112

## 2. LEVEL SHIFT(-128)

57	49	44	39	33	28	23	22
55	45	39	33	28	21	21	19
55	44	37	31	20	17	17	16
58	44	37	29	17	15	16	14
66	46	31	22	16	14	12	10
71	49	32	24	14	12	21	19
69	50	30	22	12	4	-1	-2
62	42	25	17	7	1	-16	-16

## 3. DCT

224	130	40	16	11	8	2	-1
41	-34	-14	-10	-4	0	-1	3
-7	10	-12	2	2	-5	1	-1
22	-7	9	2	0	1	-3	2
-8	4	-6	3	-1	-2	4	-1
5	2	-1	-4	0	1	-1	-1
4	-5	3	-1	0	2	0	-1
-5	5	-2	3	0	-2	1	-1

## 5. QUANTIZATION

28	22	8	2	1	0	0	0
7	-6	-2	-1	0	0	0	0
-1	1	-2	0	0	0	0	0
3	-1	1	0	0	0	0	0
-1	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0

## 4. QUANTIZATION TABLE

8	6	5	8	12	20	26	30
6	6	7	10	13	29	30	28
7	7	8	12	20	29	35	28
7	9	11	15	26	44	40	31
9	11	19	28	34	55	52	39
12	18	28	32	41	52	57	46
25	32	39	44	52	61	60	51
36	46	48	49	56	50	52	51

→ ENTROPY ENCODING

FIG. 4

VGA	1~10	11~20	21~30	31~40	41~50	51~60	61~								
	LARGER OR EQUAL	LESS OR EQUAL	LARGER OR EQUAL	LESS OR EQUAL	LARGER OR EQUAL	LESS OR EQUAL	LARGER OR EQUAL								
~18	50	300	5	100	0	60	0	45	0	30	0	10	0	0	0
L9~20	50	190	5	60	0	30	0	20	0	10	0	0	0	0	0
L21~	25	100	5	35	0	15	0	10	0	10	0	2	0	0	0

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**F I G. 5**

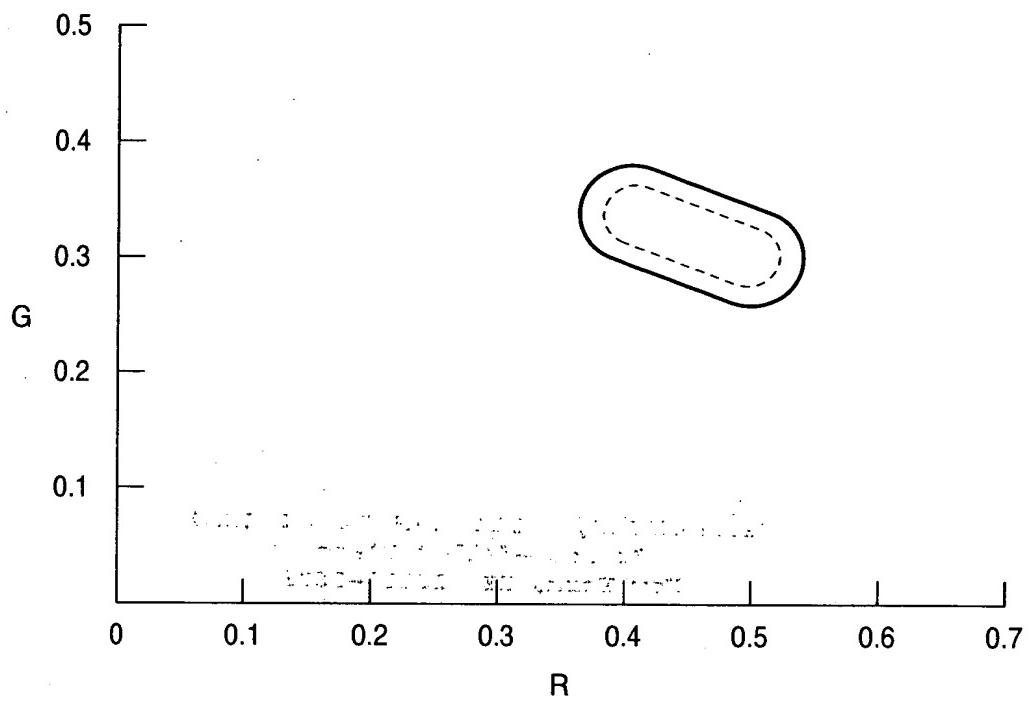
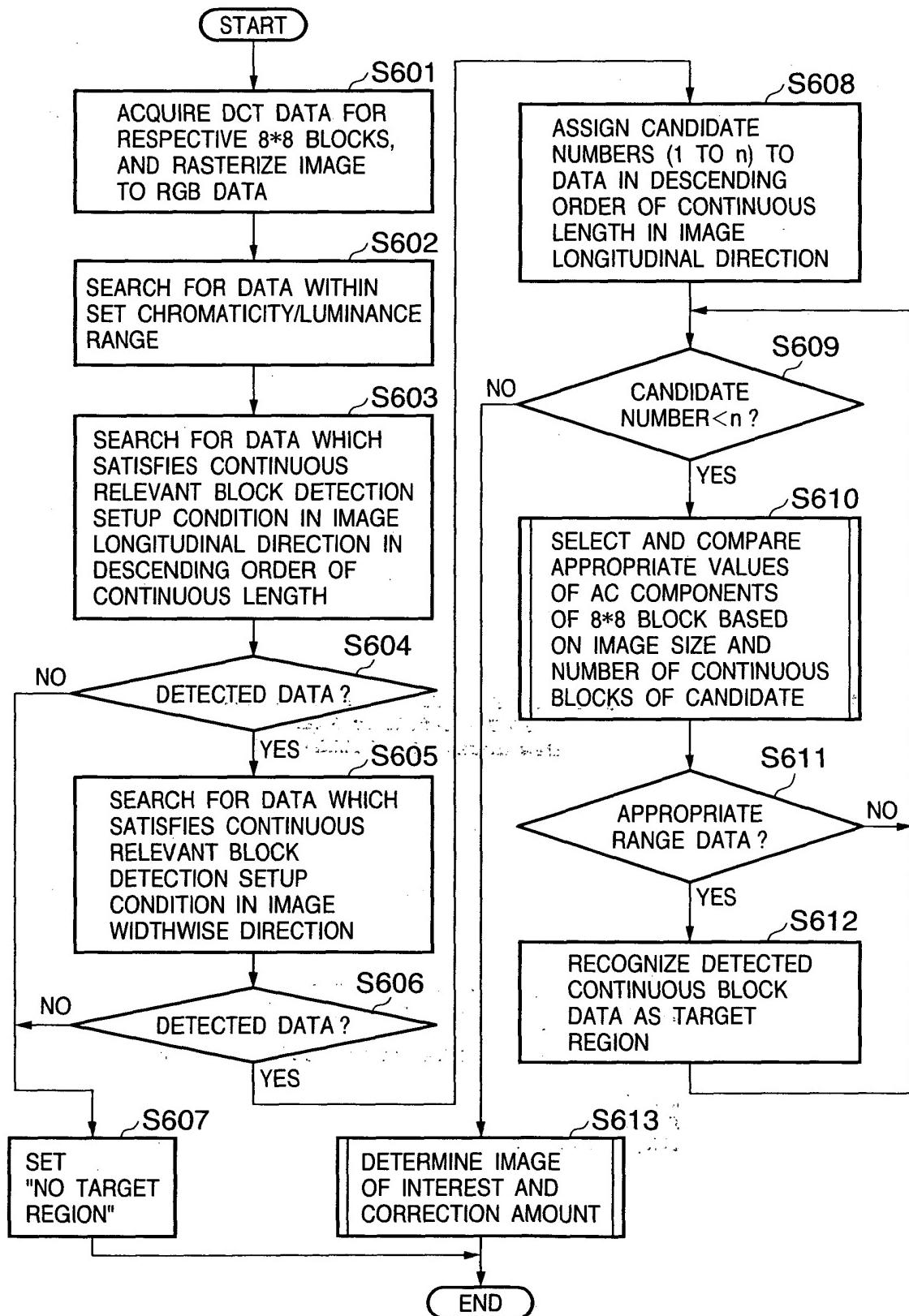
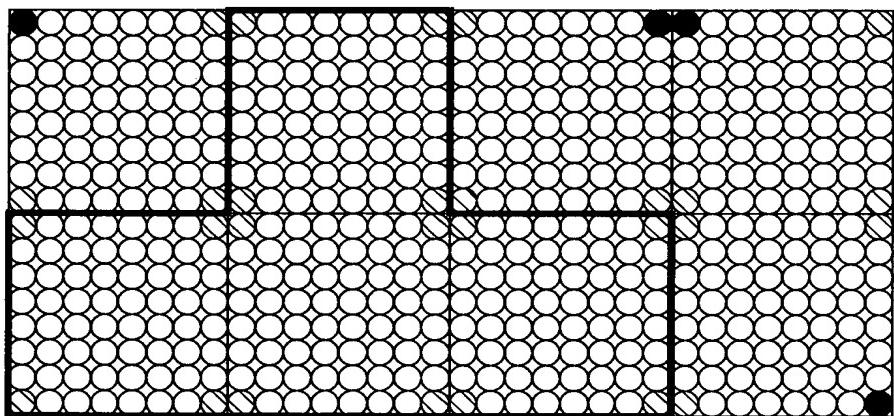


FIG. 6



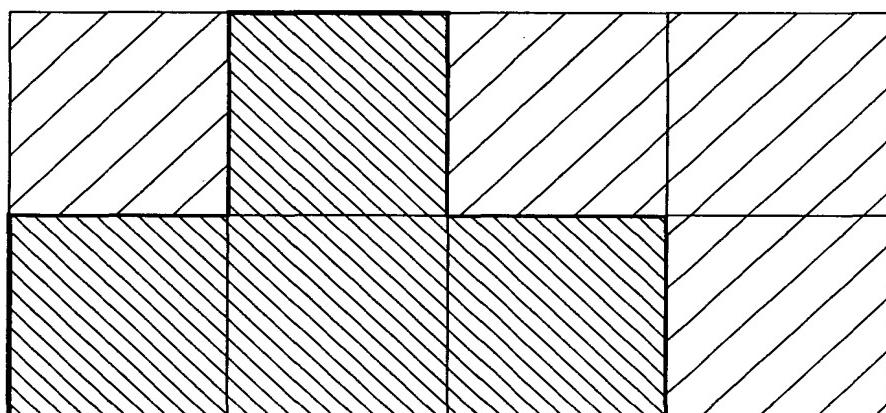
**F I G. 7**



- NON-DETECTED PIXEL
- ◎ FLESH COLOR PIXEL
- NON-FLESH COLOR PIXEL
- FLESH COLOR CONTINUOUS DETECTION CANDIDATE BLOCK

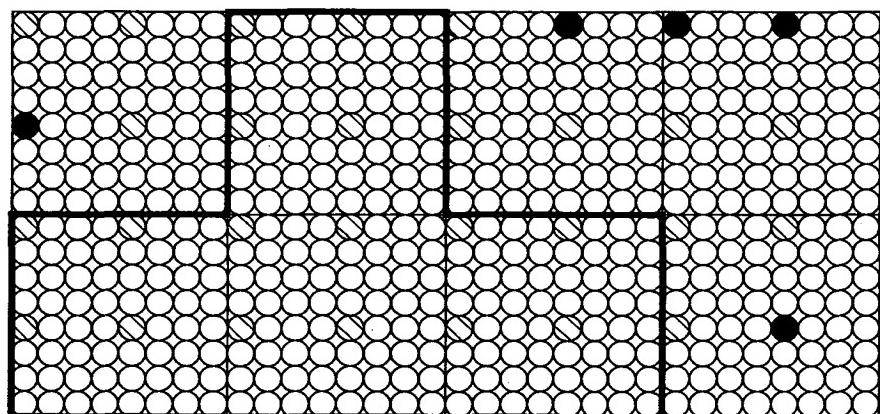
10/68

**F I G. 8**



- FLESH COLOR BLOCK  
DETERMINED AS CANDIDATE OF CONTINUOUS DETECTION
- NON-FLESH COLOR BLOCK  
NOT DETERMINED AS CANDIDATE OF CONTINUOUS DETECTION

**F I G. 9**



- DECIMATED ROW/COLUMN PIXEL
- FLESH COLOR PIXEL
- NON-FLESH COLOR PIXEL
- FLESH COLOR CONTINUOUS DETECTION CANDIDATE BLOCK

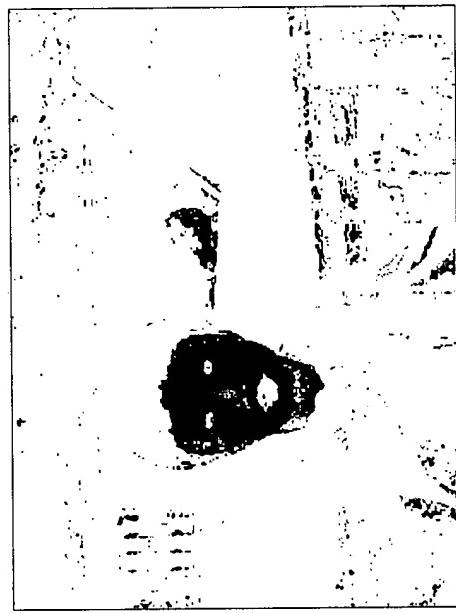
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**FIG. 10**



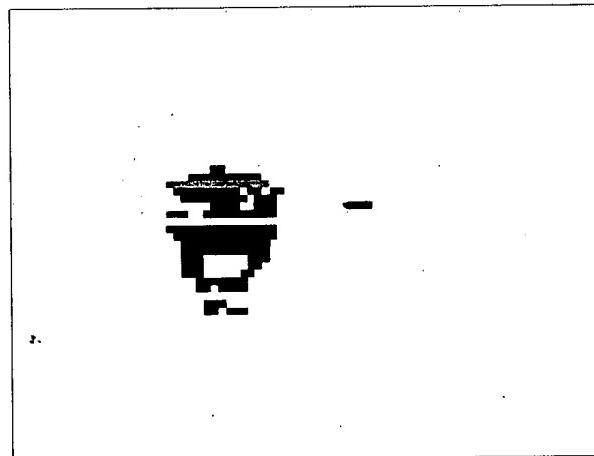
13/68

**FIG. 11**



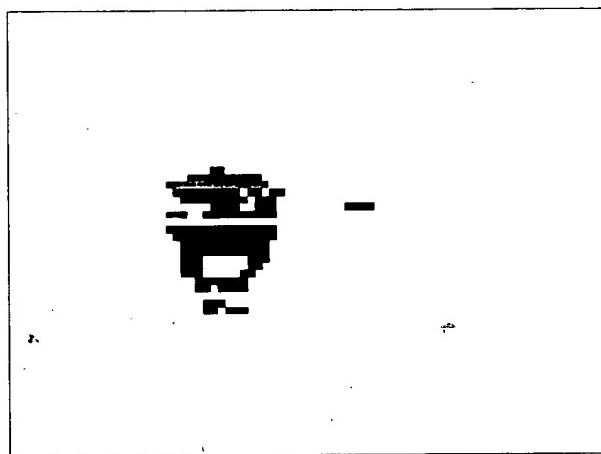
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**FIG. 12**



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**F I G. 13**



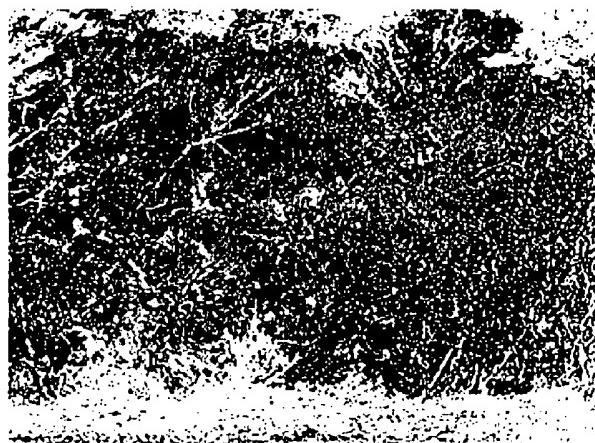
16/68

**FIG. 14**



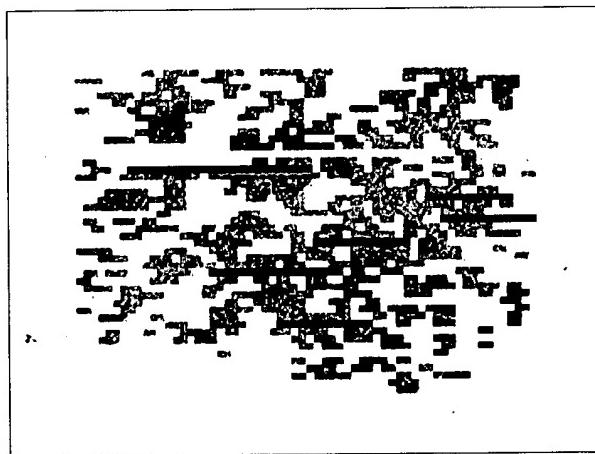
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**FIG. 15**



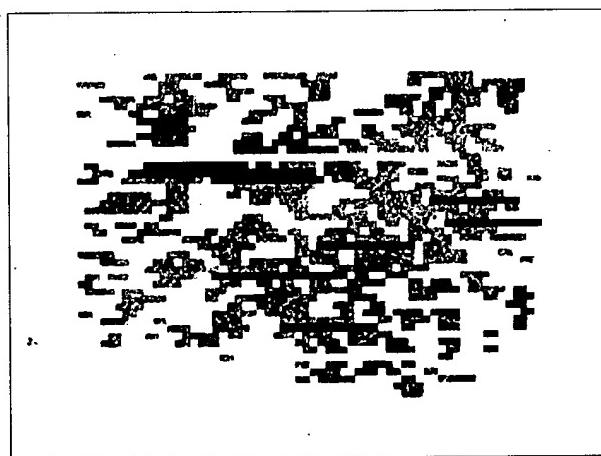
18/68

**FIG. 16**



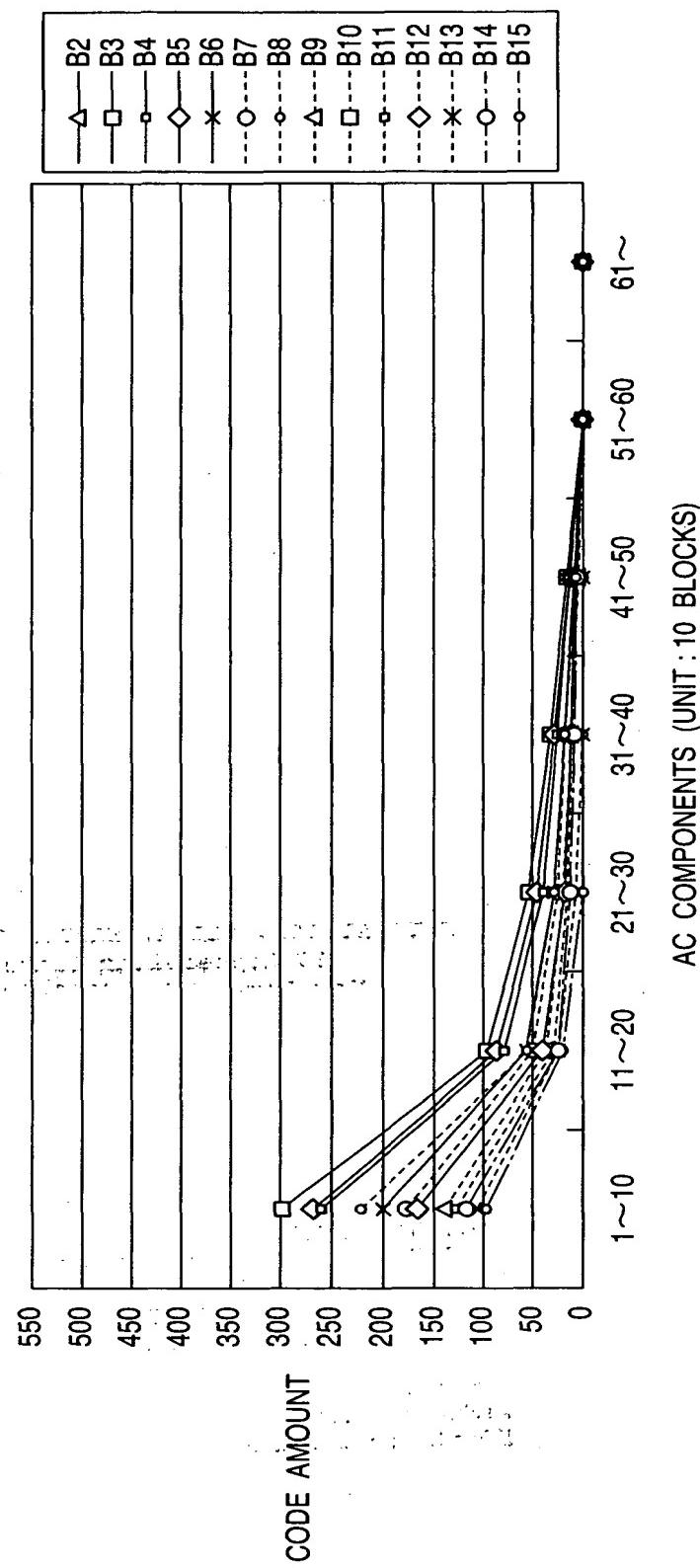
19/68

**FIG. 17**



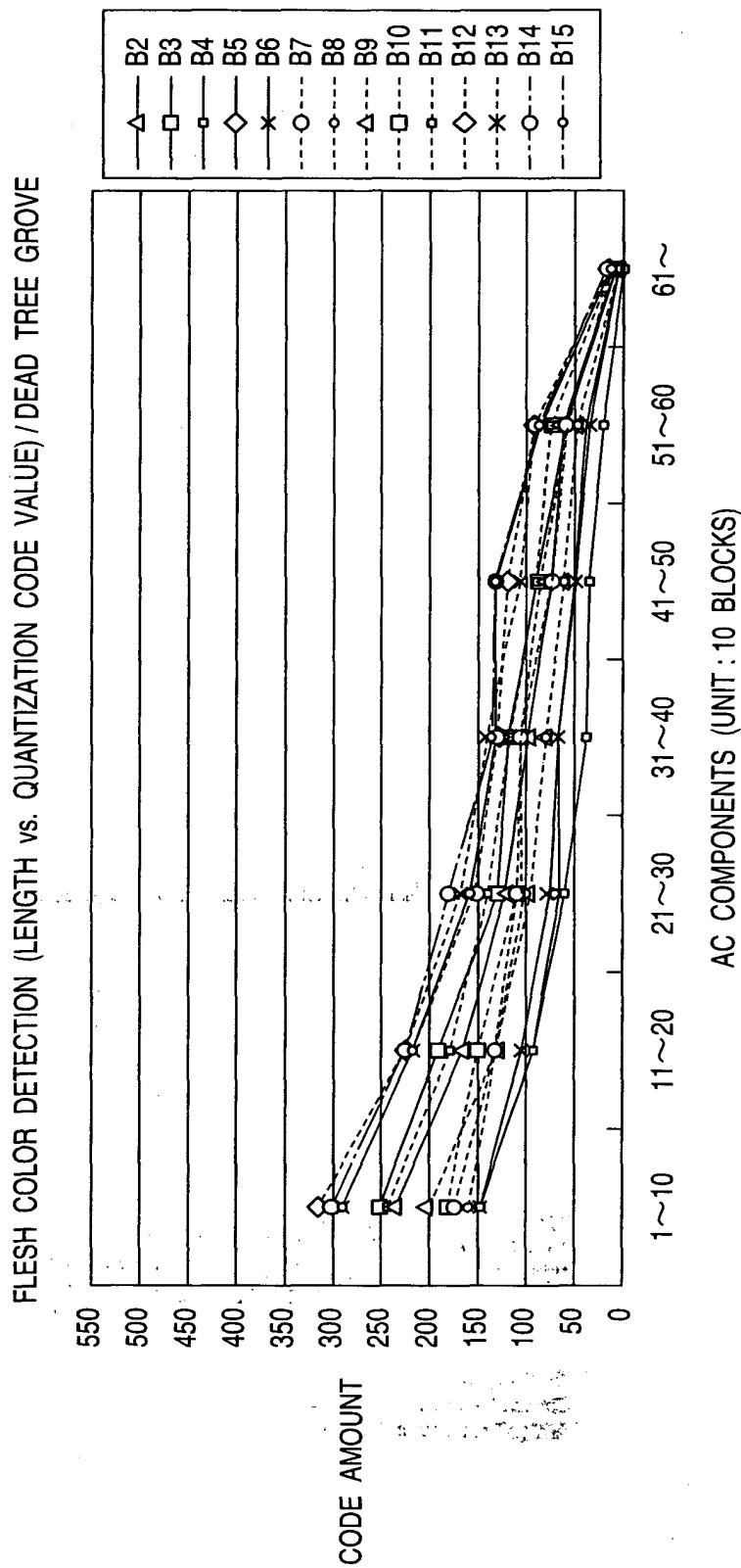
# FIG. 18

FLESH COLOR DETECTION (LENGTH vs. QUANTIZATION CODE VALUE) / FACE

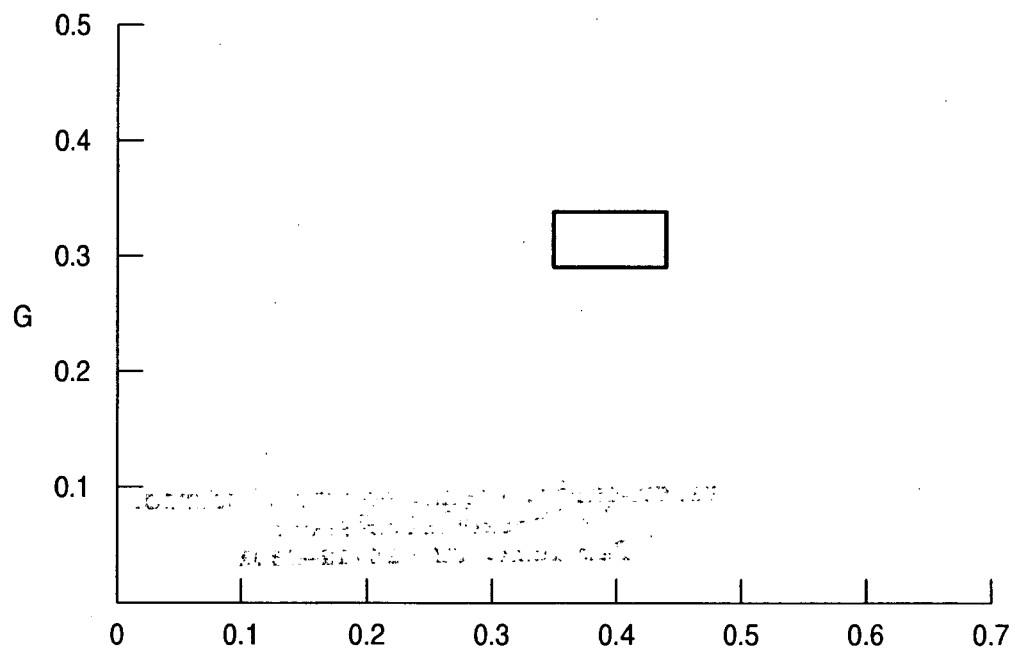


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FIG. 19



**F I G. 20**



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**FIG. 21**

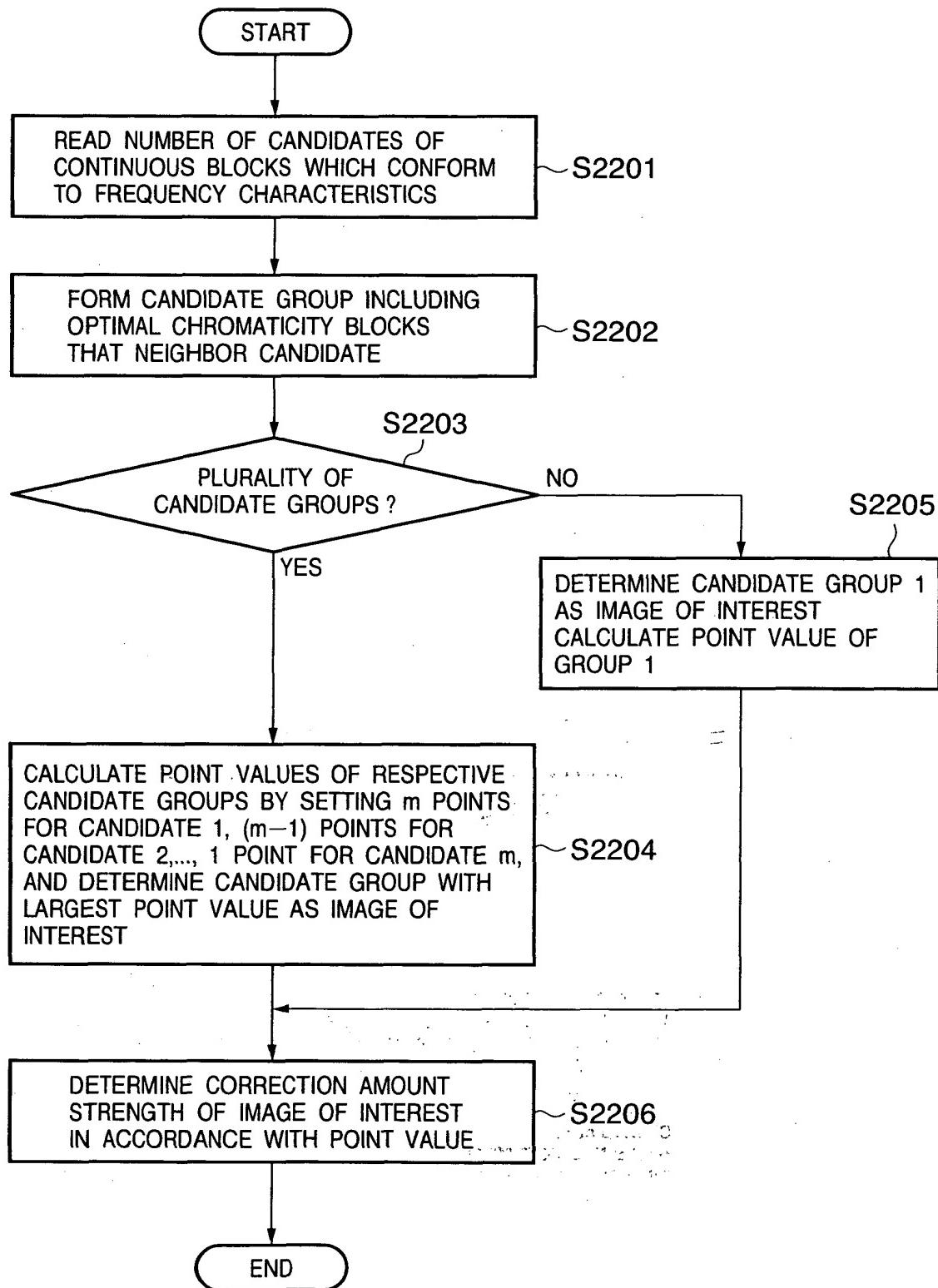
ORIGINAL IMAGE



BOUNDARY BASED  
ON FREQUENCY



FIG. 22



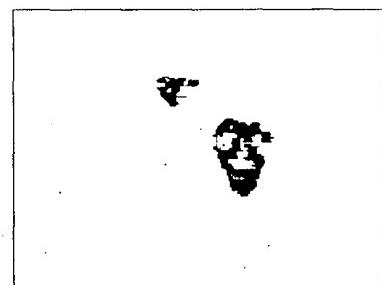
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**F I G. 23**

ORIGINAL IMAGE



CANDIDATE GROUP  
DETECTION RESULT



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## FIG. 24

NORMAL IMAGE  
CORRECTION RESULT

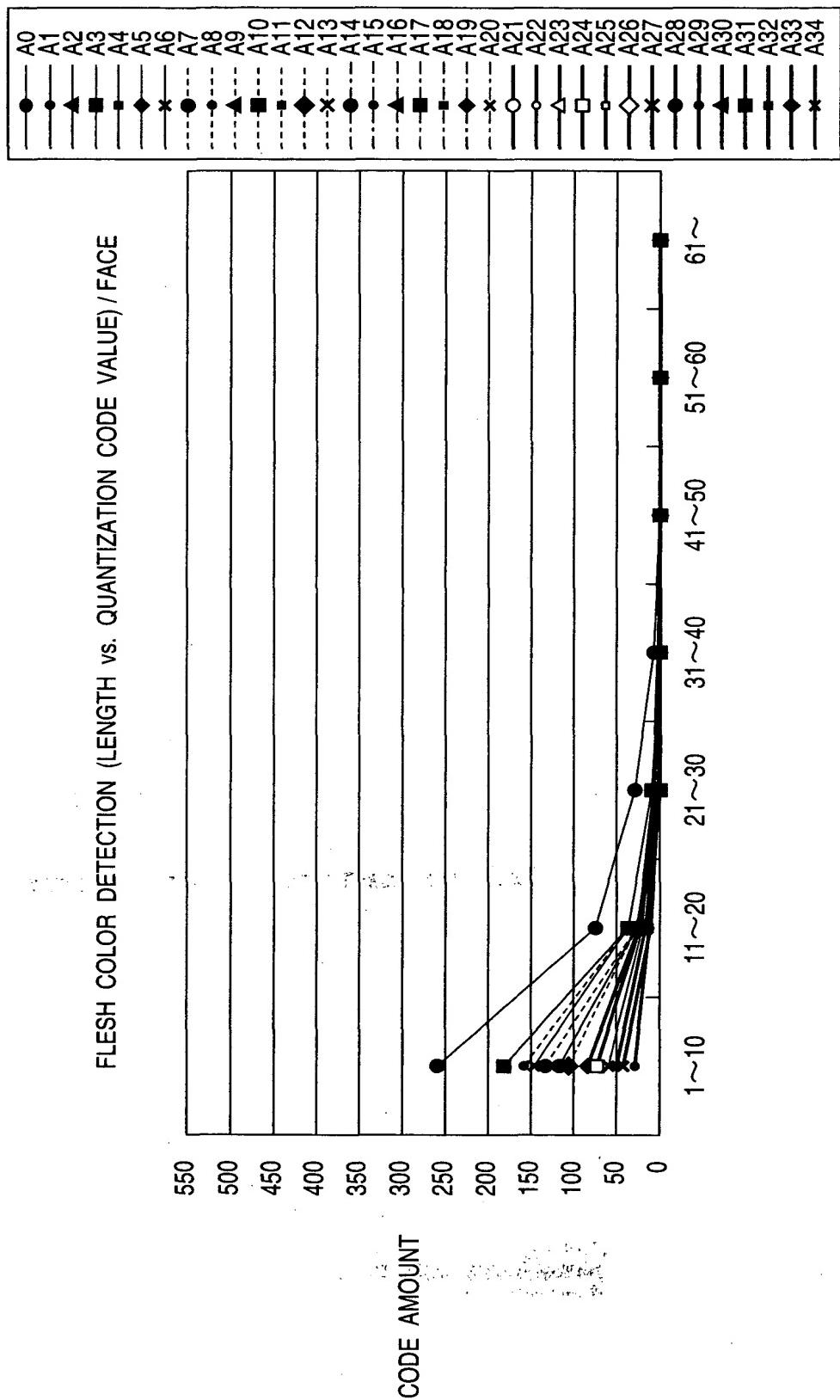


IMAGE OF INTEREST  
CORRECTION RESULT

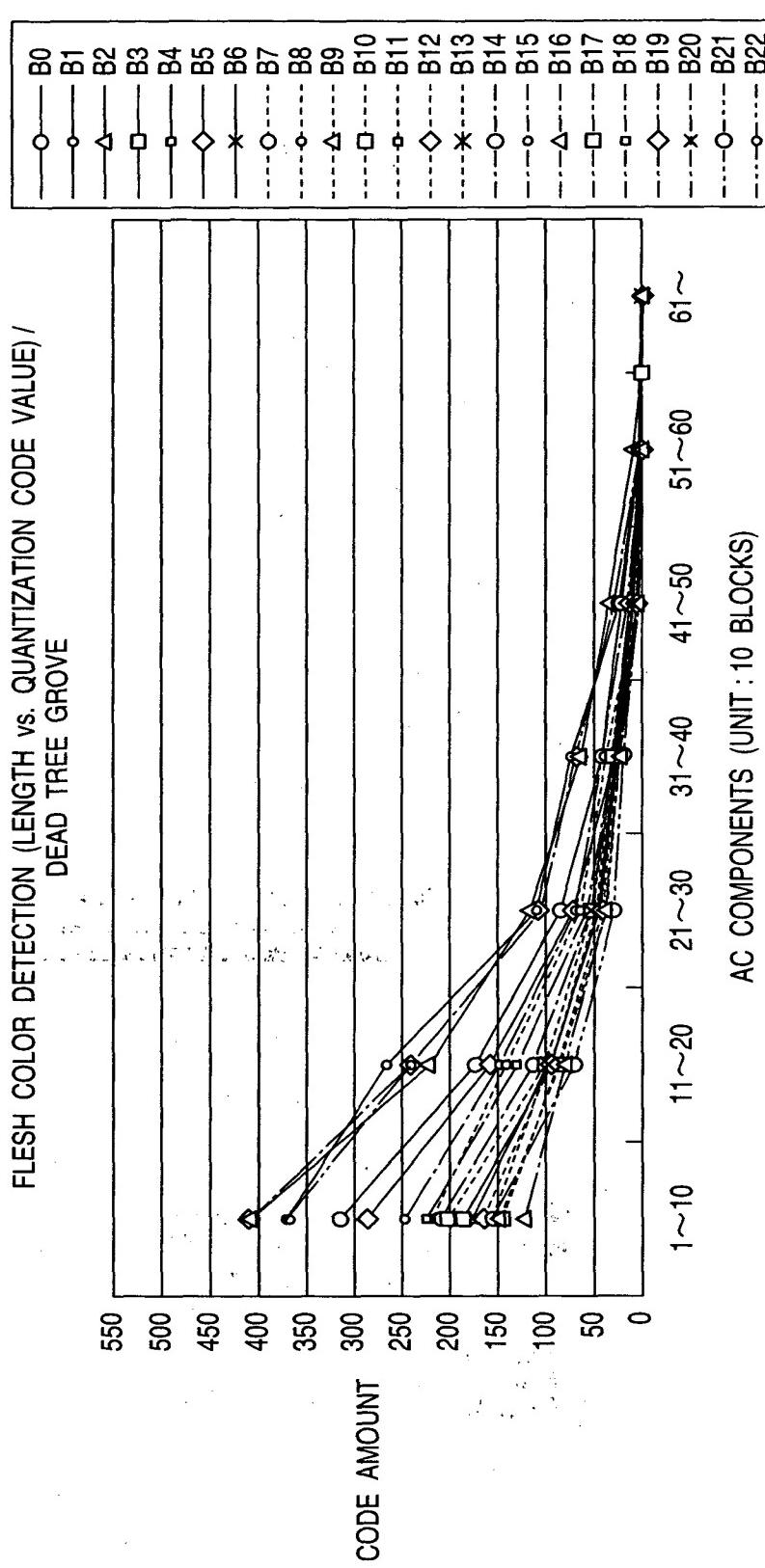


FIG. 25

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**FIG. 26**



# FIG. 27

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UXGA	1~10	11~20	21~30	31~40	41~50	51~60	61~
	LARGER OR EQUAL	LESS OR EQUAL	LARGER OR EQUAL	LARGER OR EQUAL	LARGER OR EQUAL	LARGER OR EQUAL	LESS OR EQUAL
~L12	60	200	10	60	0	30	0
L13~20	30	170	10	50	0	20	0
L21~	30	100	5	35	0	10	0

**F I G. 28**

**Table00** : LOW IMAGE QUALITY  
(HIGH COMPRESSION RATIO)

32, 33, 51, 81, 66, 39, 34, 17,  
33, 36, 48, 47, 28, 23, 12, 12,  
51, 48, 47, 28, 23, 12, 12, 12,  
81, 47, 28, 23, 12, 12, 12, 12,  
66, 28, 23, 12, 12, 12, 12, 12,  
39, 23, 12, 12, 12, 12, 12, 12,  
34, 12, 12, 12, 12, 12, 12, 12,  
17, 12, 12, 12, 12, 12, 12,

**Table01** : LOW IMAGE QUALITY  
(HIGH COMPRESSION RATIO)

27, 26, 41, 65, 66, 39, 34, 17,  
26, 29, 38, 47, 28, 23, 12, 12,  
41, 38, 47, 28, 23, 12, 12, 12,  
65, 47, 28, 23, 12, 12, 12, 12,  
66, 28, 23, 12, 12, 12, 12, 12,  
39, 23, 12, 12, 12, 12, 12, 12,  
34, 12, 12, 12, 12, 12, 12, 12,  
17, 12, 12, 12, 12, 12, 12,

**Table02** : LOW IMAGE QUALITY  
(HIGH COMPRESSION RATIO)

20, 17, 26, 41, 51, 39, 34, 17,  
17, 18, 24, 39, 28, 23, 12, 12,  
26, 24, 32, 28, 23, 12, 12, 12,  
41, 39, 28, 23, 12, 12, 12, 12,  
51, 28, 23, 12, 12, 12, 12, 12,  
39, 23, 12, 12, 12, 12, 12, 12,  
34, 12, 12, 12, 12, 12, 12, 12,  
17, 12, 12, 12, 12, 12, 12,

**Table03** : LOW IMAGE QUALITY  
(HIGH COMPRESSION RATIO)

18, 14, 14, 21, 30, 35, 34, 17,  
14, 16, 16, 19, 26, 23, 12, 12,  
14, 16, 17, 21, 23, 12, 12, 12,  
21, 19, 21, 23, 12, 12, 12, 12,  
30, 26, 23, 12, 12, 12, 12, 12,  
35, 23, 12, 12, 12, 12, 12, 12,  
34, 12, 12, 12, 12, 12, 12, 12,  
17, 12, 12, 12, 12, 12, 12,

**Table04** : LOW IMAGE QUALITY  
(HIGH COMPRESSION RATIO)

16, 11, 11, 16, 23, 27, 31, 17,  
11, 12, 12, 15, 20, 23, 12, 12,  
11, 12, 13, 16, 23, 12, 12, 12,  
16, 15, 16, 23, 12, 12, 12, 12,  
23, 20, 23, 12, 12, 12, 12, 12,  
27, 23, 12, 12, 12, 12, 12, 12,  
31, 12, 12, 12, 12, 12, 12, 12,  
17, 12, 12, 12, 12, 12, 12,

**Table05** : STANDARD

12, 8, 8, 12, 17, 21, 24, 17,  
8, 9, 9, 11, 15, 19, 12, 12,  
8, 9, 10, 12, 19, 12, 12, 12,  
12, 11, 12, 21, 12, 12, 12, 12,  
17, 15, 19, 12, 12, 12, 12, 12,  
21, 19, 12, 12, 12, 12, 12, 12,  
24, 12, 12, 12, 12, 12, 12, 12,  
17, 12, 12, 12, 12, 12, 12,

# F I G. 29

**Table06 : STANDARD**

8,	6,	6,	8,	12,	14,	16,	17,
6,	6,	6,	8,	10,	13,	12,	12,
6,	6,	7,	8,	13,	12,	12,	12,
8,	8,	8,	14,	12,	12,	12,	12,
12,	10,	13,	12,	12,	12,	12,	12,
14,	13,	12,	12,	12,	12,	12,	12,
16,	12,	12,	12,	12,	12,	12,	12,
17,	12,	12,	12,	12,	12,	12,	12,

**Table07 : STANDARD**

10,	7,	7,	10,	15,	18,	20,	17,
7,	8,	8,	10,	13,	16,	12,	12,
7,	8,	8,	10,	16,	12,	12,	12,
10,	10,	10,	18,	12,	12,	12,	12,
15,	13,	16,	12,	12,	12,	12,	12,
18,	16,	12,	12,	12,	12,	12,	12,
20,	12,	12,	12,	12,	12,	12,	12,
17,	12,	12,	12,	12,	12,	12,	12,

**Table08 : HIGH IMAGE QUALITY**

6,	4,	4,	6,	9,	11,	12,	16,
4,	5,	5,	6,	8,	10,	12,	12,
4,	5,	5,	6,	10,	12,	12,	12,
6,	6,	6,	11,	12,	12,	12,	12,
9,	8,	10,	12,	12,	12,	12,	12,
11,	10,	12,	12,	12,	12,	12,	12,
12,	12,	12,	12,	12,	12,	12,	12,
16,	12,	12,	12,	12,	12,	12,	12,

**Table09 : HIGH IMAGE QUALITY**

4,	3,	3,	4,	6,	7,	8,	10,
3,	3,	3,	4,	5,	6,	8,	10,
3,	3,	3,	4,	6,	9,	12,	12,
4,	4,	4,	7,	9,	12,	12,	12,
6,	5,	6,	9,	12,	12,	12,	12,
7,	6,	9,	12,	12,	12,	12,	12,
8,	8,	12,	12,	12,	12,	12,	12,
10,	10,	12,	12,	12,	12,	12,	12,

**Table10 : HIGHEST IMAGE QUALITY  
(LOW COMPRESSION RATIO)**

2,	2,	2,	2,	3,	4,	5,	6,
2,	2,	2,	2,	3,	4,	5,	6,
2,	2,	2,	2,	4,	5,	7,	9,
2,	2,	2,	4,	5,	7,	9,	12,
3,	3,	4,	5,	8,	10,	12,	12,
4,	4,	5,	7,	10,	12,	12,	12,
5,	5,	7,	9,	12,	12,	12,	12,
6,	6,	9,	12,	12,	12,	12,	12,

**Table11 : HIGHEST IMAGE QUALITY  
(LOW COMPRESSION RATIO)**

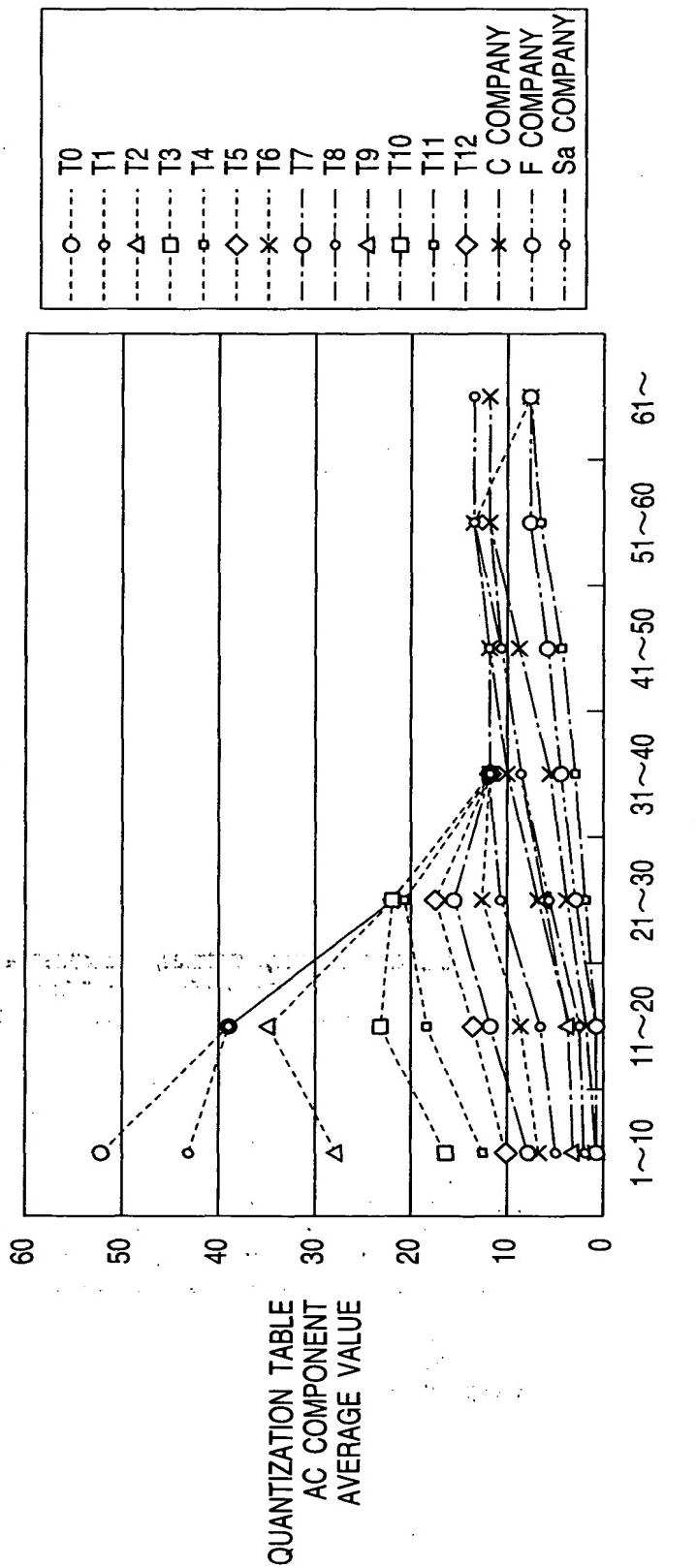
1,	1,	1,	1,	1,	2,	2,	3,
1,	1,	1,	1,	1,	2,	2,	3,
1,	1,	1,	1,	1,	2,	3,	4,
1,	1,	1,	1,	2,	3,	4,	5,
2,	1,	2,	3,	4,	5,	7,	8,
2,	2,	3,	4,	5,	7,	8,	8,
2,	2,	4,	5,	7,	8,	8,	8,
3,	3,	5,	7,	8,	8,	8,	8,

**F I G. 30**

**Table12 : HIGHEST IMAGE QUALITY  
(LOW COMPRESSION RATIO)**

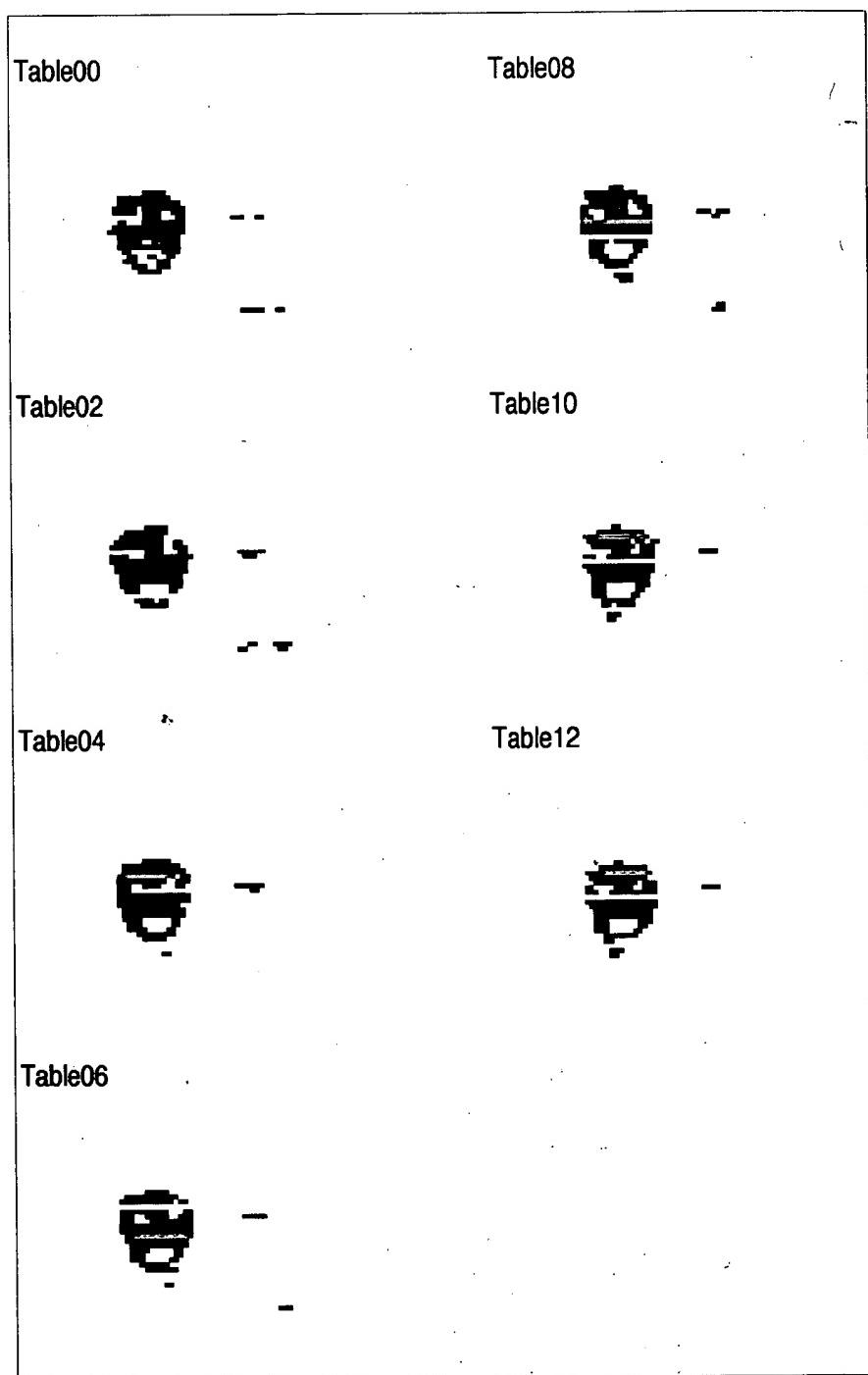
1,	1,	1,	1,	1,	1,	1,	1,	1,
1,	1,	1,	1,	1,	1,	1,	1,	1,
1,	1,	1,	1,	1,	1,	1,	1,	2,
1,	1,	1,	1,	1,	1,	1,	2,	2,
1,	1,	1,	1,	1,	2,	2,	2,	3,
1,	1,	1,	1,	2,	2,	3,	3,	3,
1,	1,	1,	2,	2,	3,	3,	3,	3,
1,	1,	2,	2,	3,	3,	3,	3,	3,

FIG. 31



QUANTIZATION TABLE AC COMPONENT CLASS

**F I G. 32**



# FIG. 33

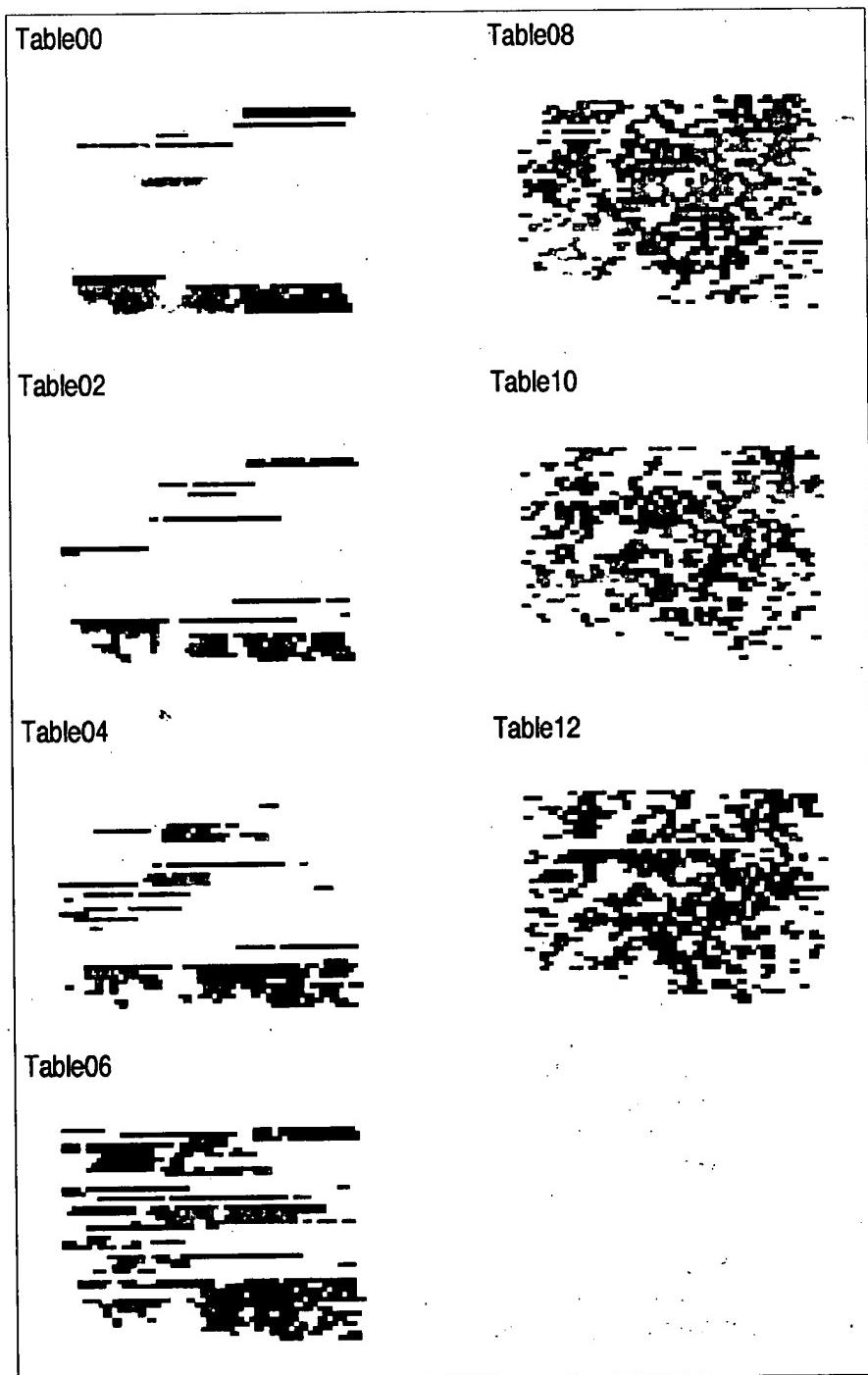


FIG. 34

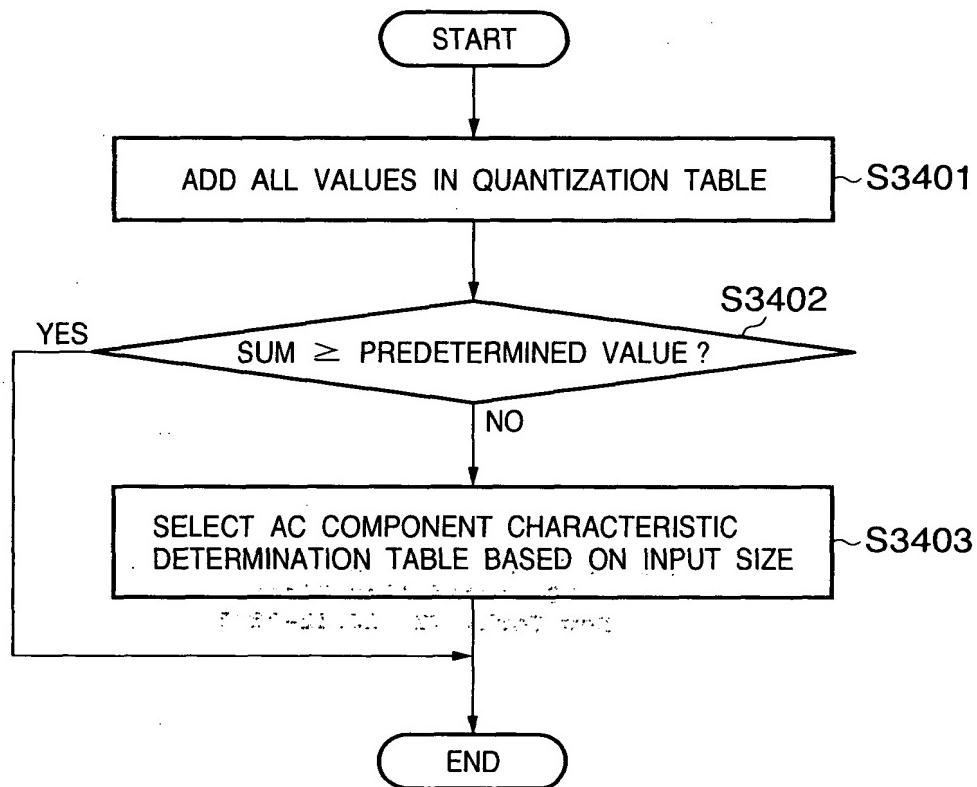


FIG. 35

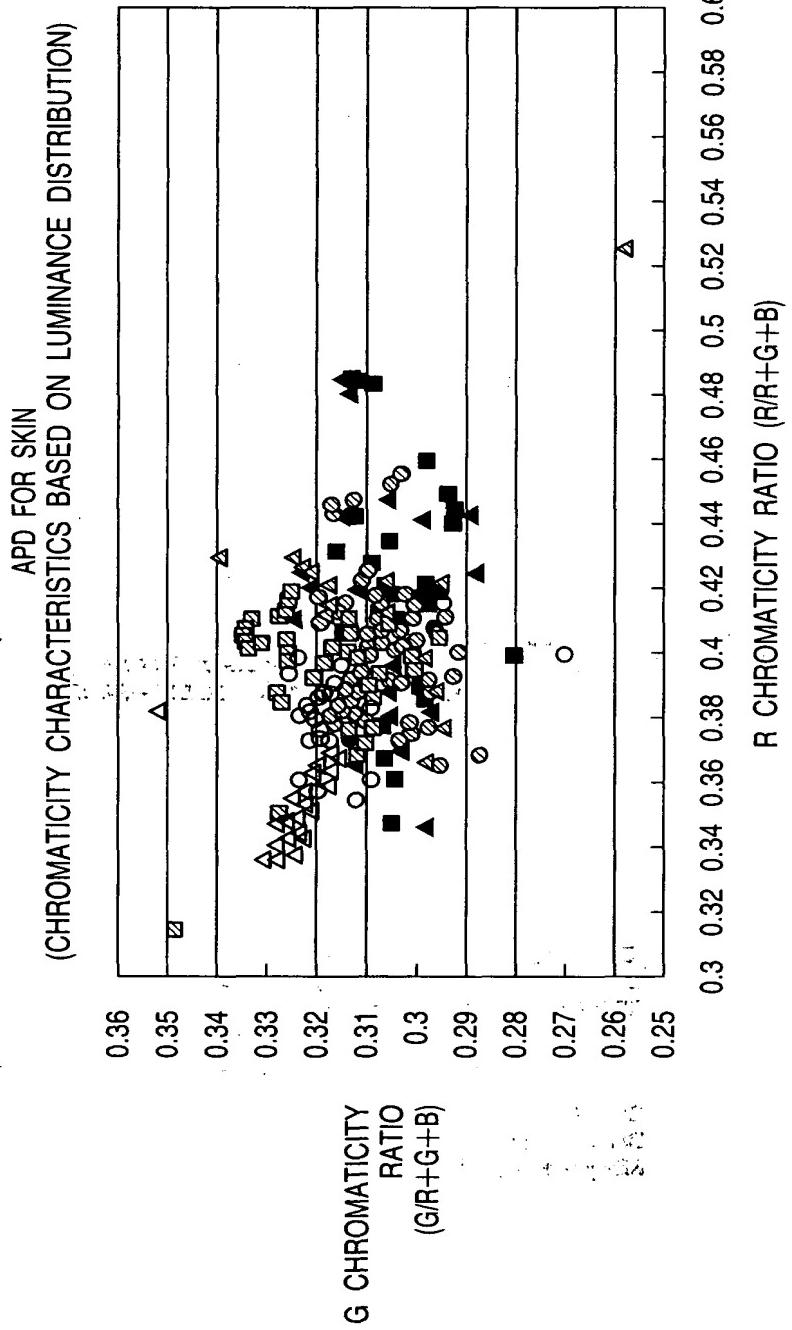


FIG. 36

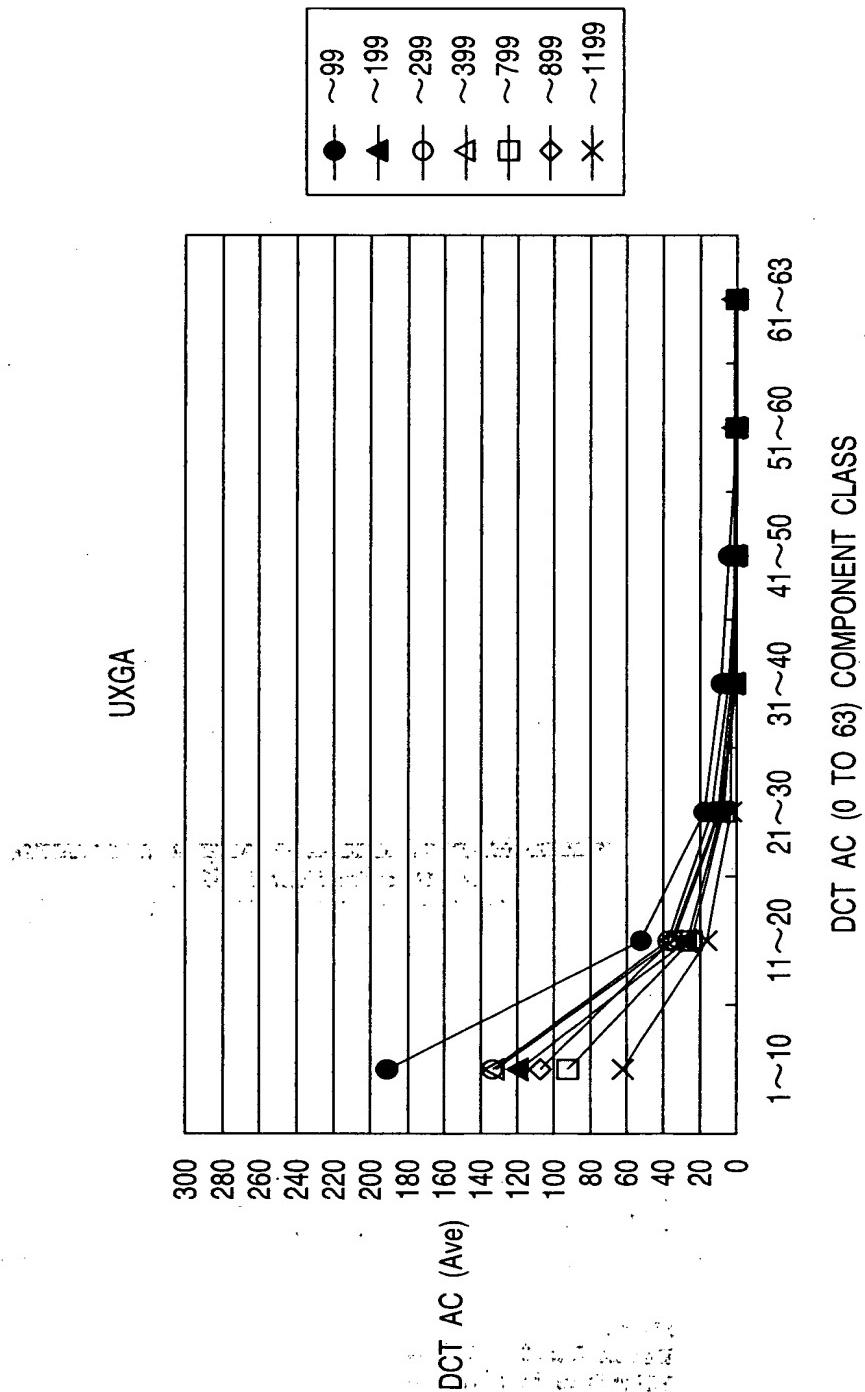
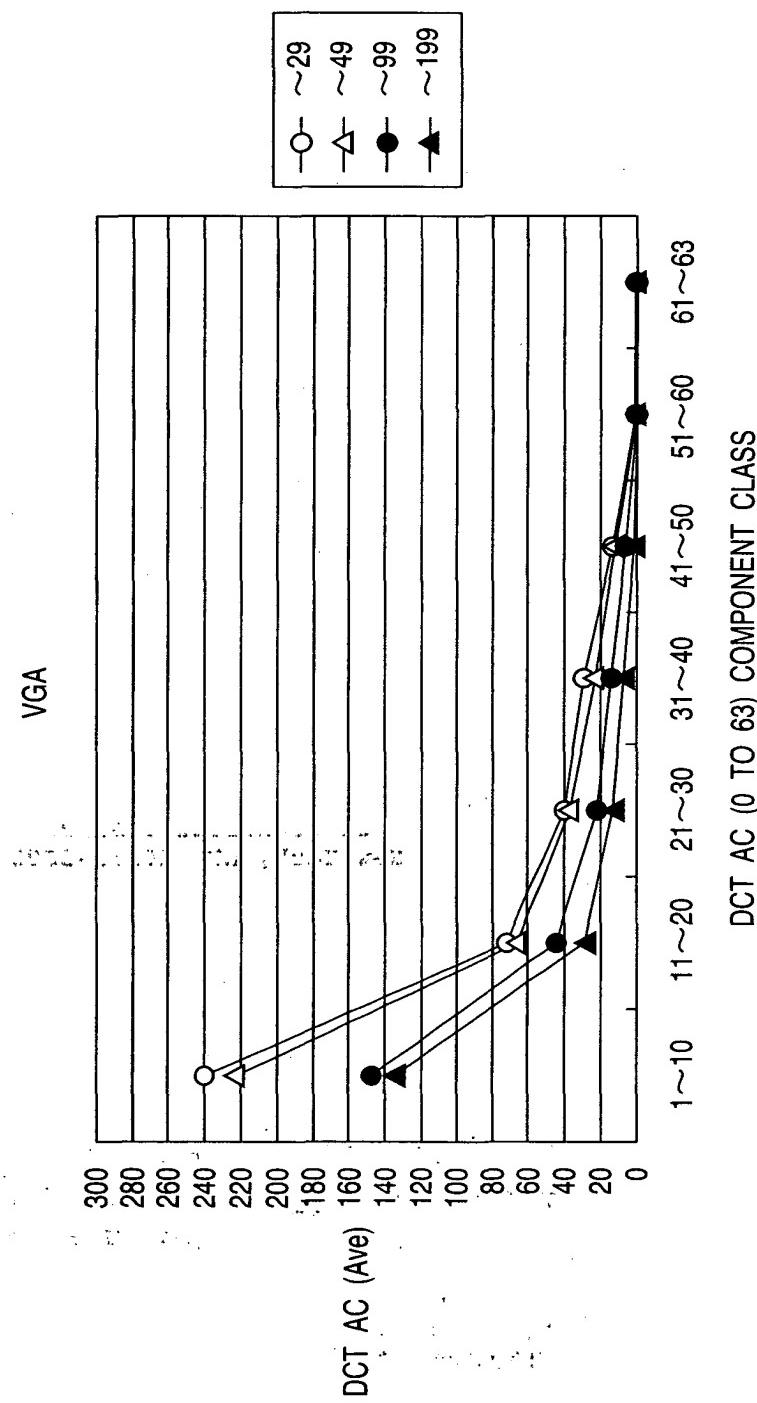


FIG. 37



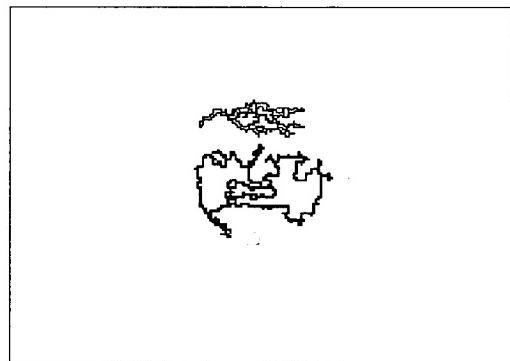
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**F I G. 38**



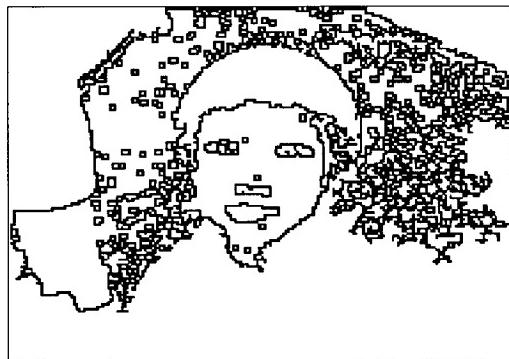
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**F I G. 39**



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**F I G. 40**



**F I G. 41**

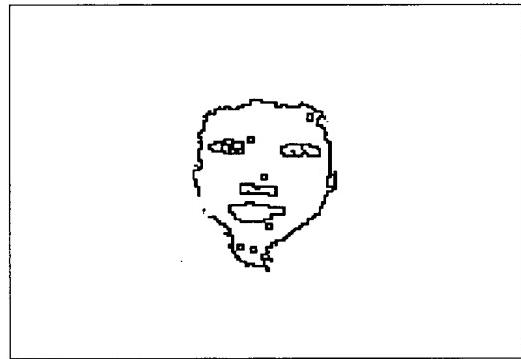
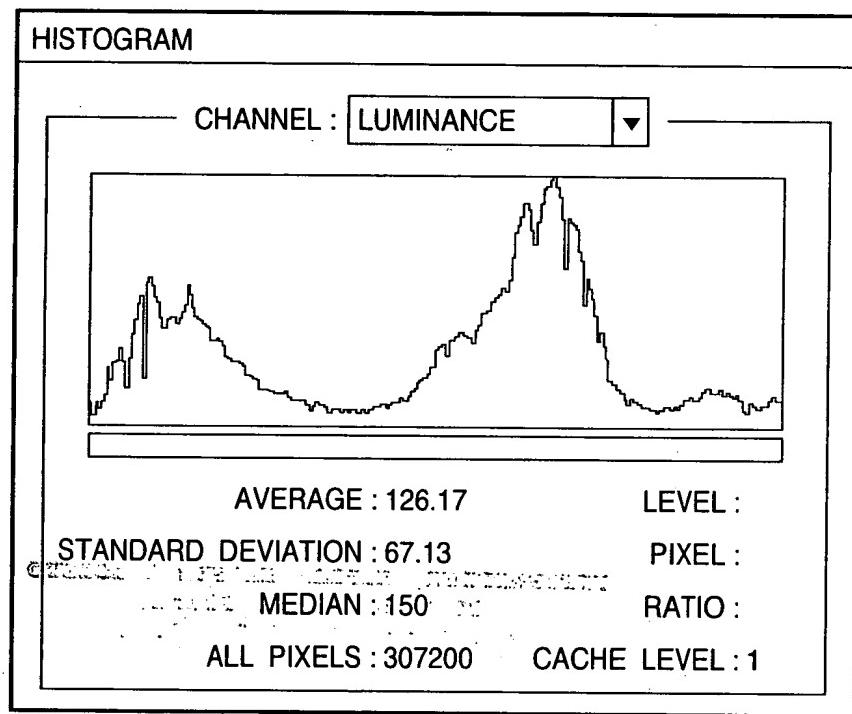


FIGURE 41  
A highly pixelated, black and white portrait of a person's head and shoulders, centered within a large rectangular frame.

## FIG. 42



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**F I G. 43**



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**F I G. 44**

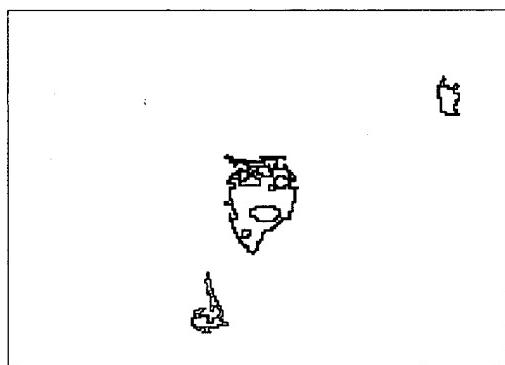


FIGURE 44. A faint sketch of a head and shoulders profile facing left.

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**F I G. 45**



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**F I G. 46**



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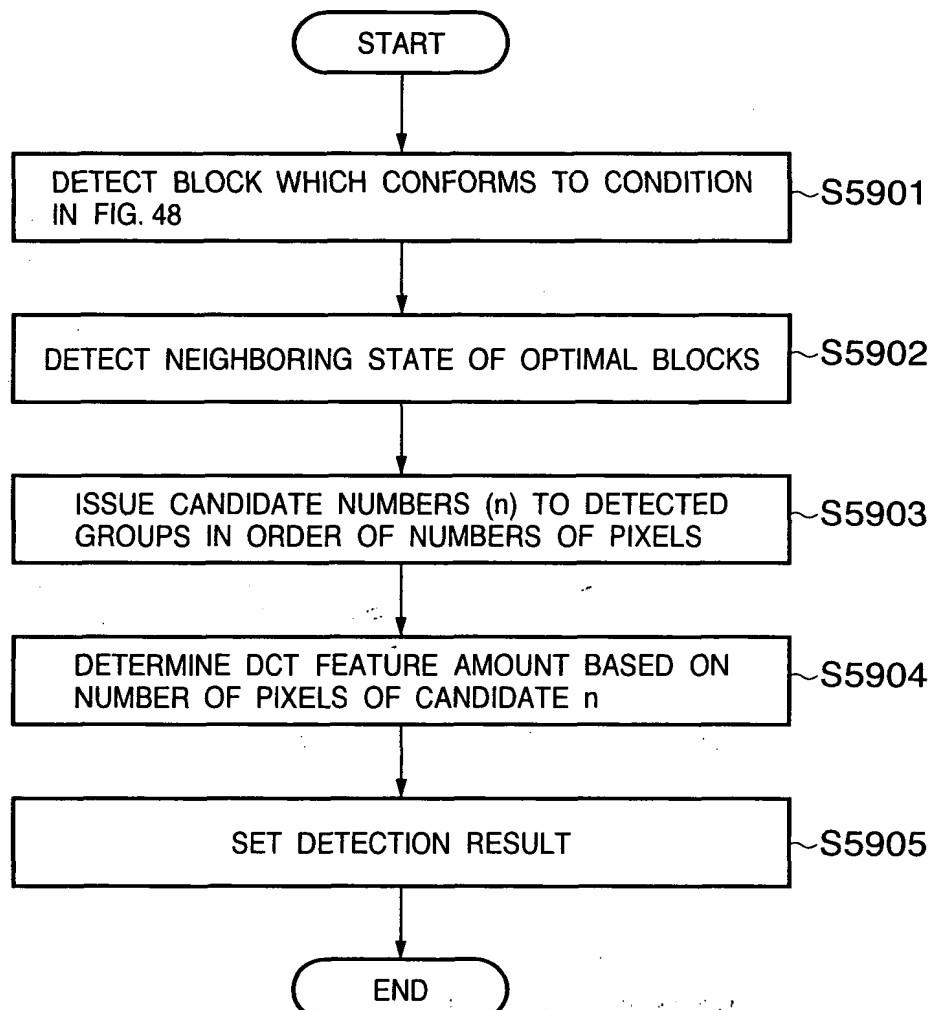
# FIG. 47

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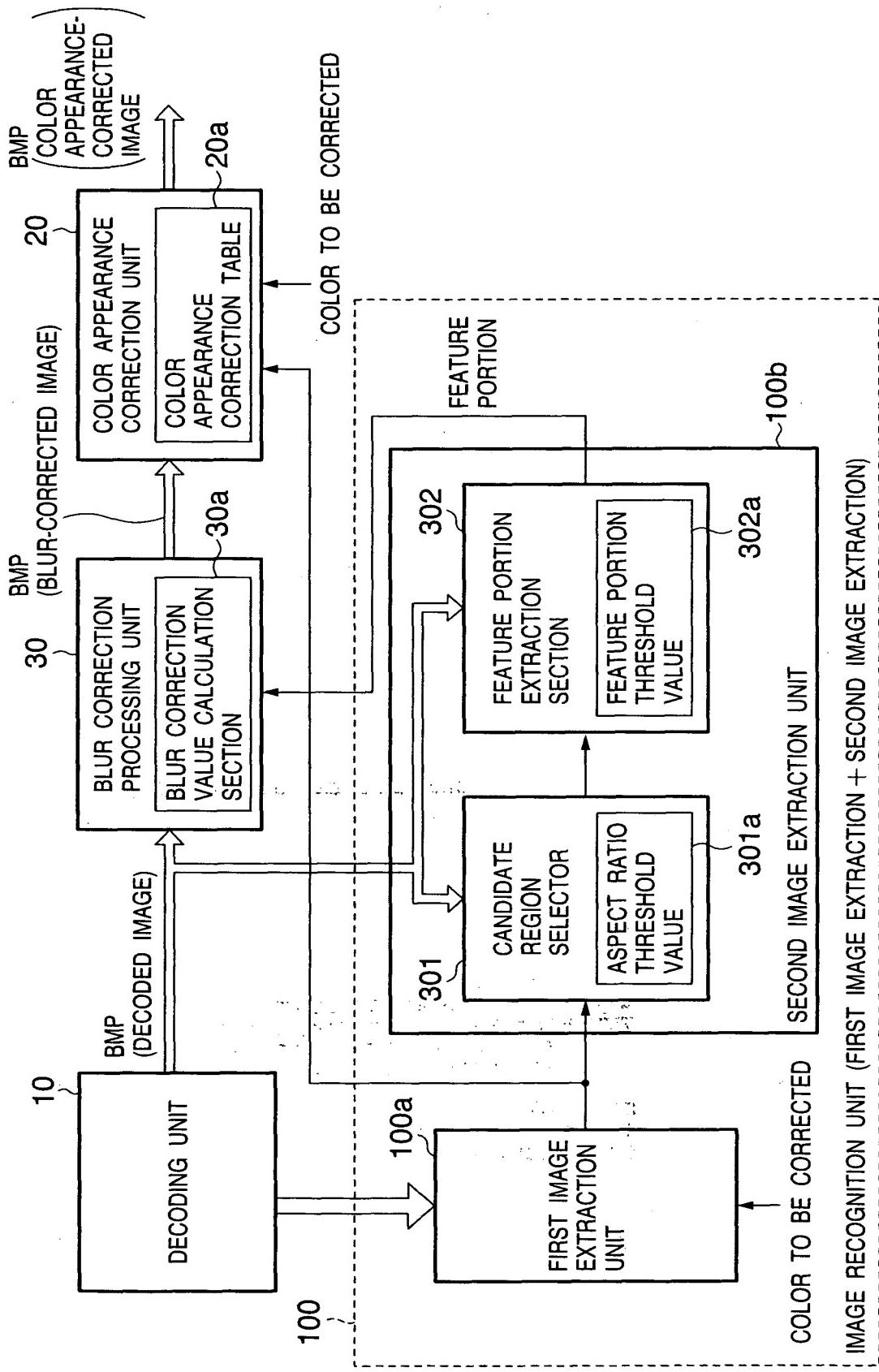
	1~10	11~20	21~30	31~40	41~50	51~60	61~63							
LARGER OR EQUAL	LESS OR EQUAL	LARGER OR EQUAL	LARGER OR EQUAL	LESS OR EQUAL	LARGER OR EQUAL	LESS OR EQUAL	LARGER OR EQUAL							
10~29	100	470	40	140	15	80	10	60	0	40	0	10	0	0
~49	100	350	20	110	5	70	0	45	0	30	0	10	0	0
~99	50	300	10	90	0	50	0	40	0	20	0	10	0	0
~199	50	170	10	50	0	30	0	20	0	10	0	0	0	0
200<	50	150	10	50	0	25	0	15	0	5	0	0	0	0

**FIG. 48**

LUMINANCE CLASS	R/R+G+B	G/R+G+B
0~160	0.35~0.44	0.29~0.33
161~219	$f1=0.35-(n-160)*0.02$	$f2=0.35-(n-160)*0.01$
220~255	0.33~0.42	0.30~0.34

**F I G. 49**

**F I G. 50**



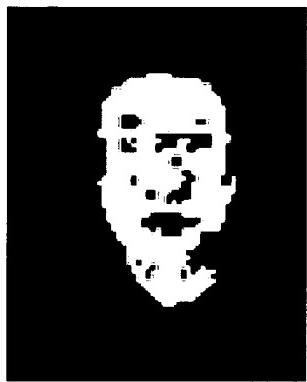
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**F I G. 51**



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**F I G. 52**



54/68 FIG. 52

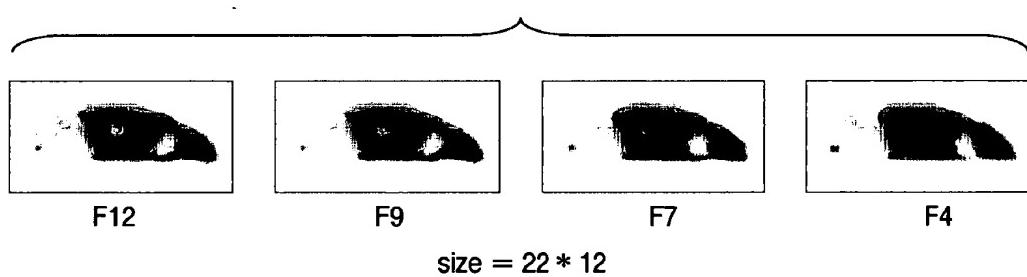
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**F I G. 53**



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**F I G. 54**



size = 22 \* 12

**F I G. 55**

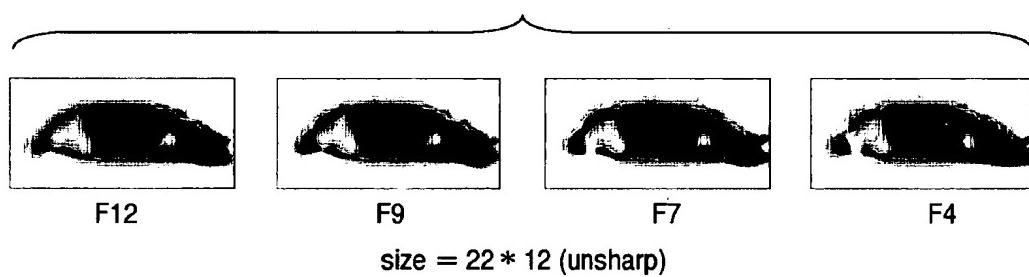
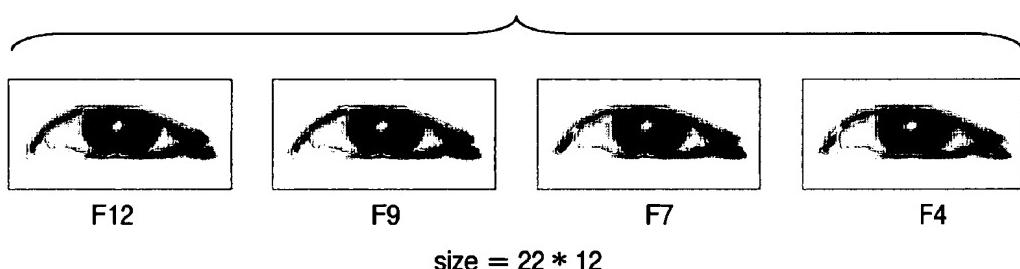


FIGURE 55. Unsharp mask filtering of the same image.

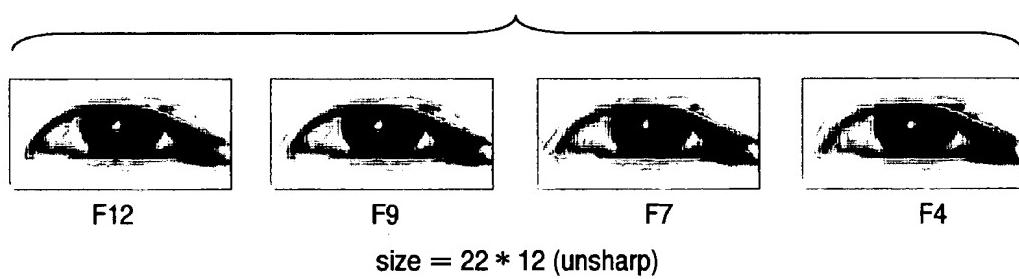
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**F I G. 56**



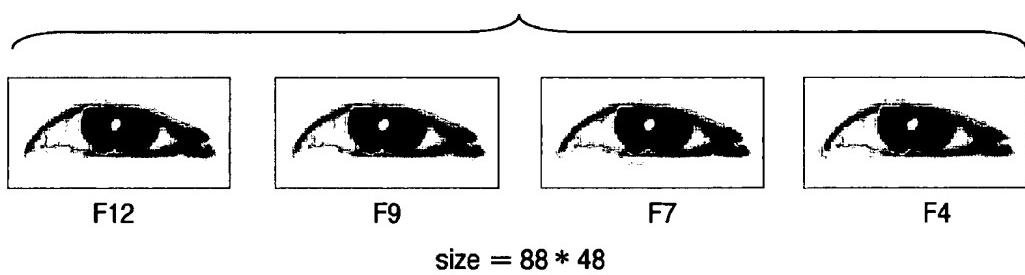
size = 22 \* 12

**FIG. 57**



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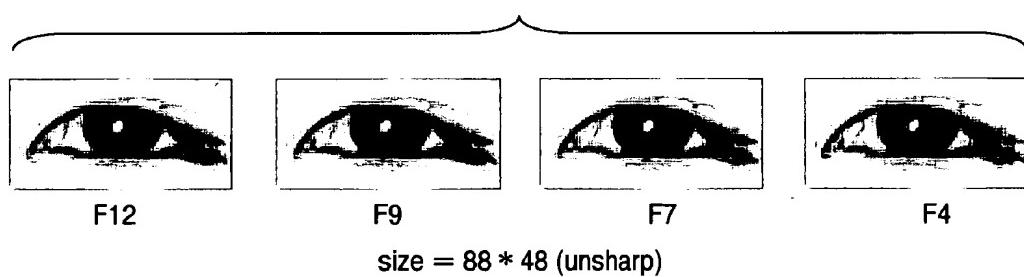
**FIG. 58**



size = 88 \* 48

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**F I G. 59**



size = 88 \* 48 (unsharp)

FIG. 60

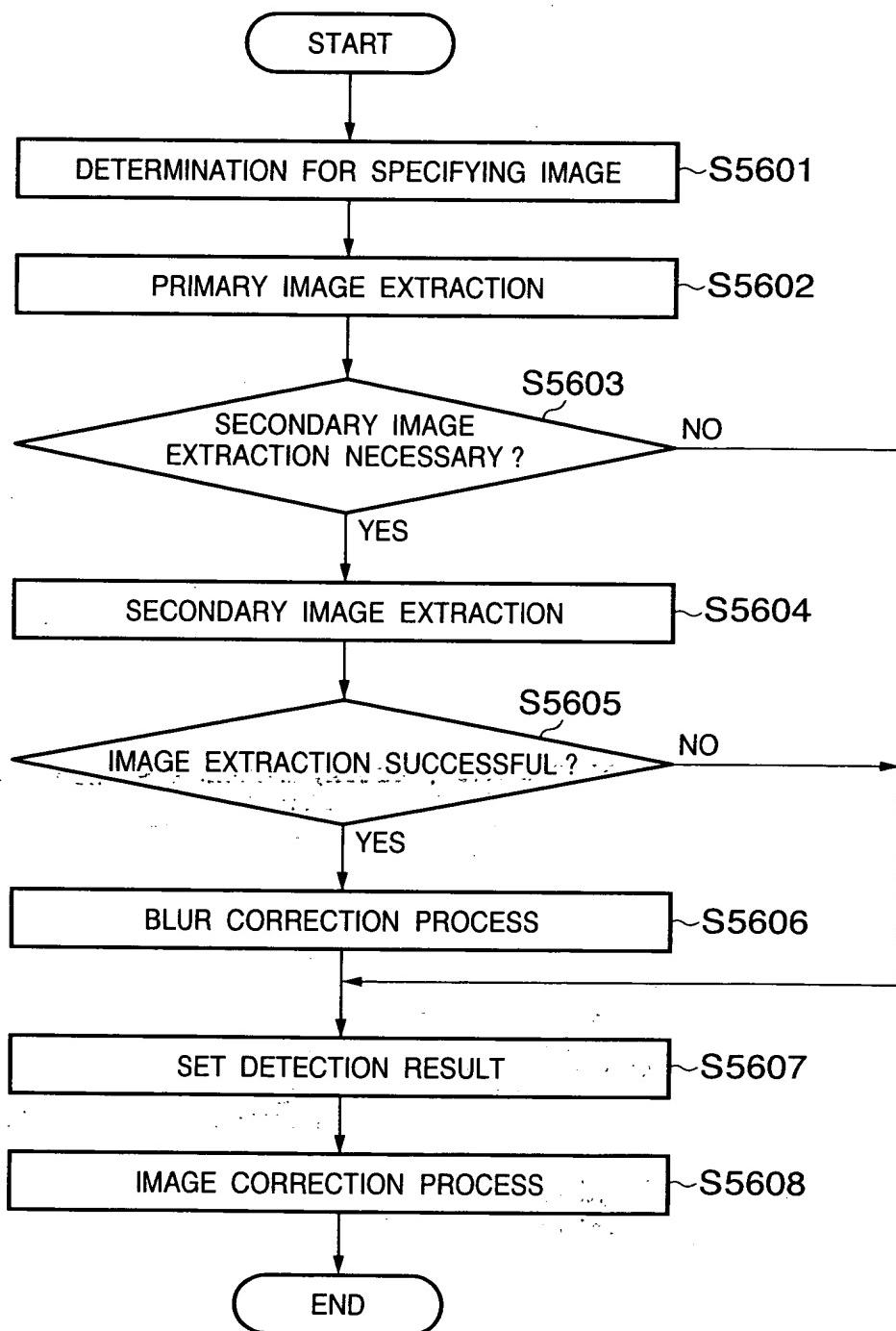
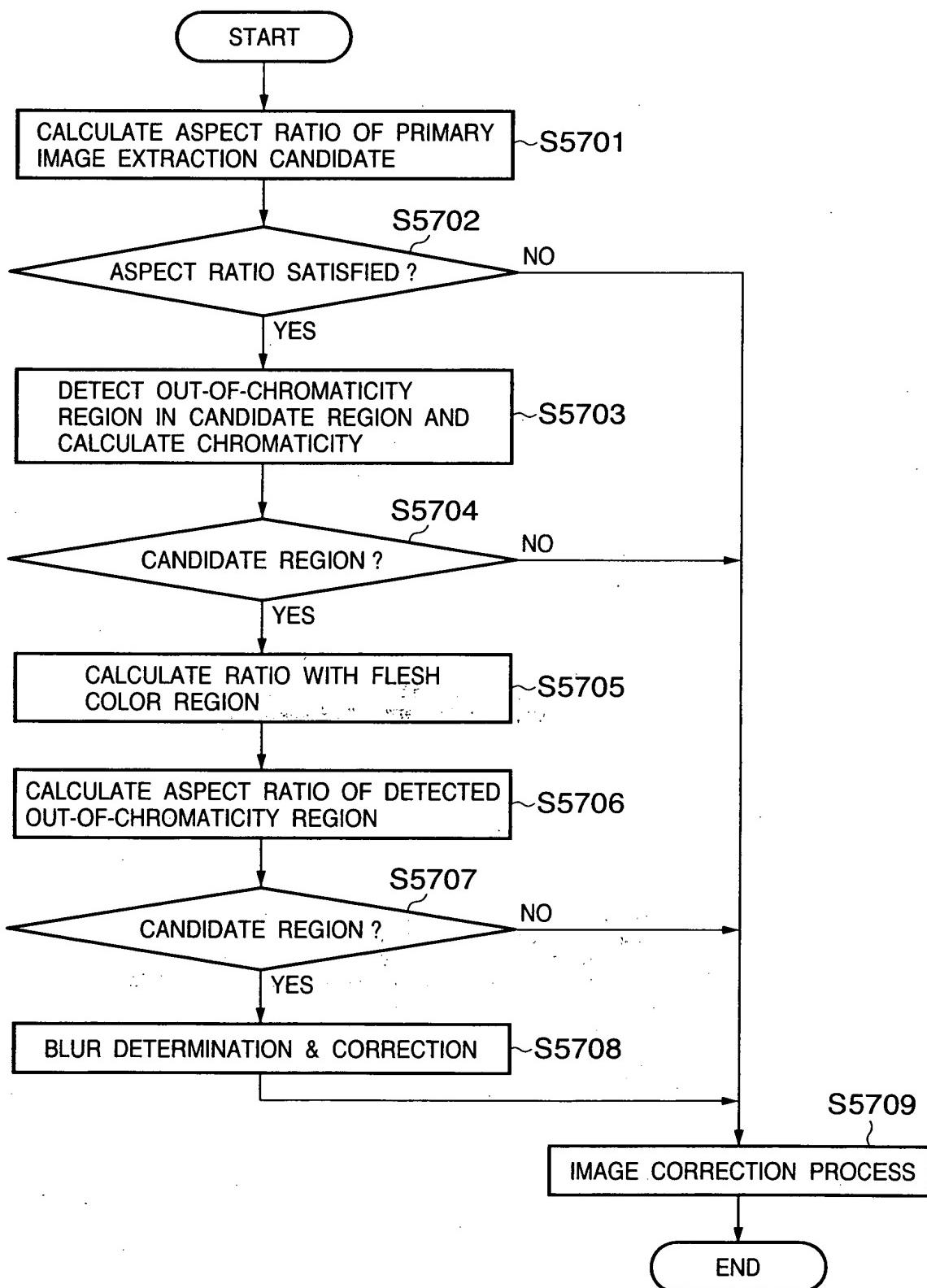


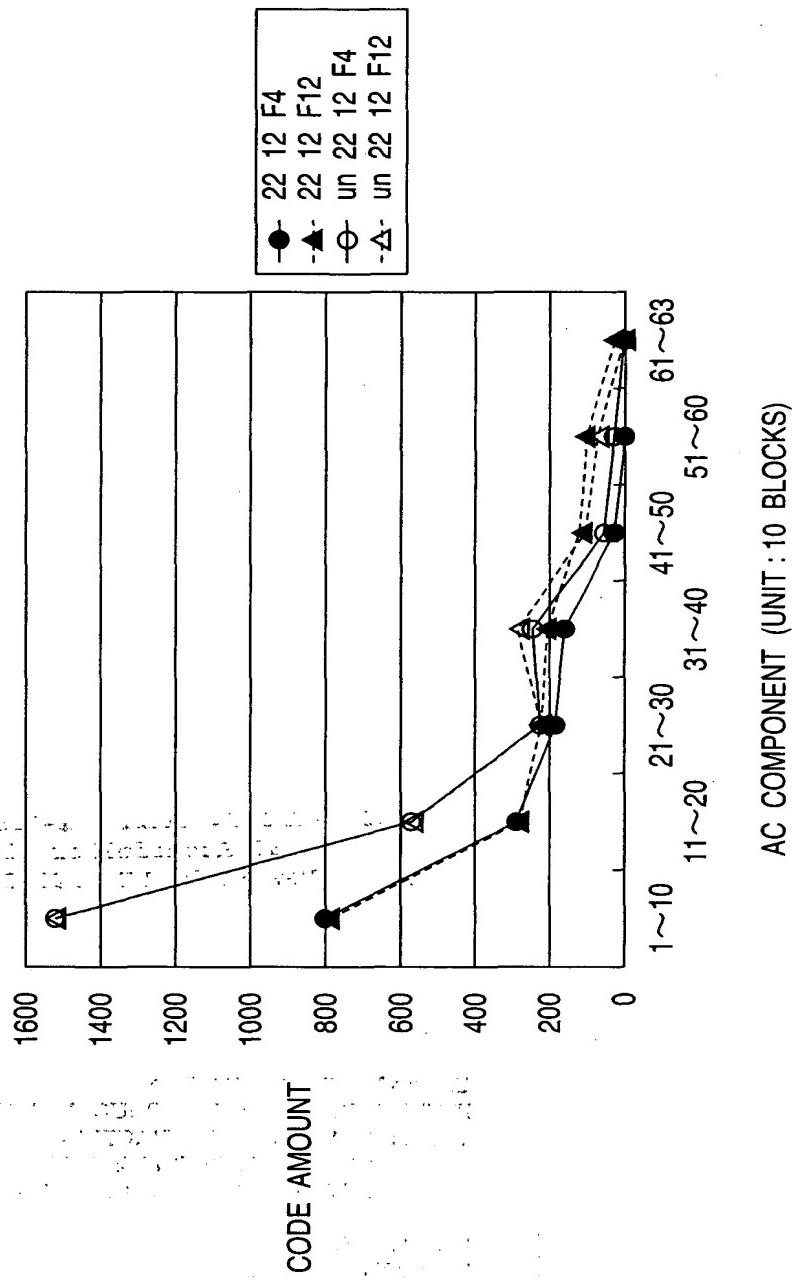
FIG. 61



**FIG. 62**

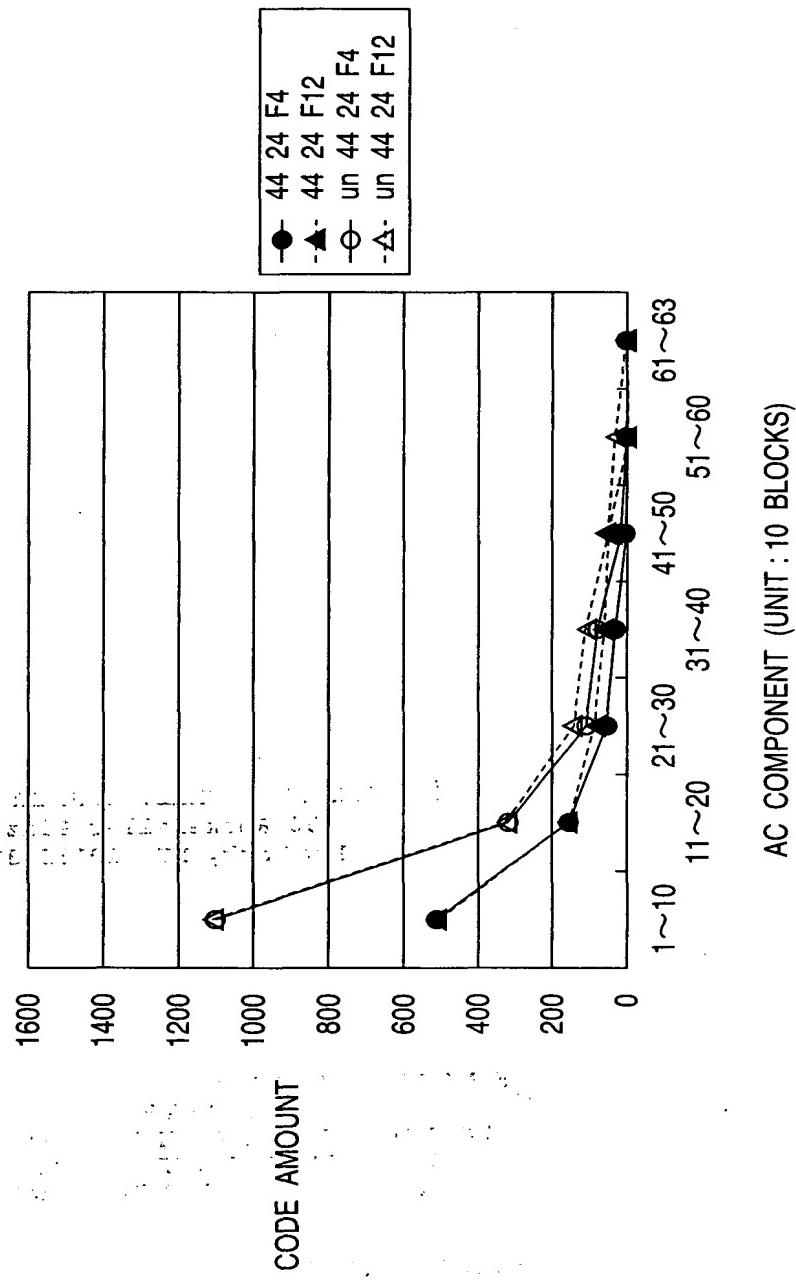
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DCT CHARACTERISTIC COMPARISON BETWEEN QUANTIZATION  
FILTER VALUE AND UNSHARP MASK PROCESS (22\*12 SIZE)



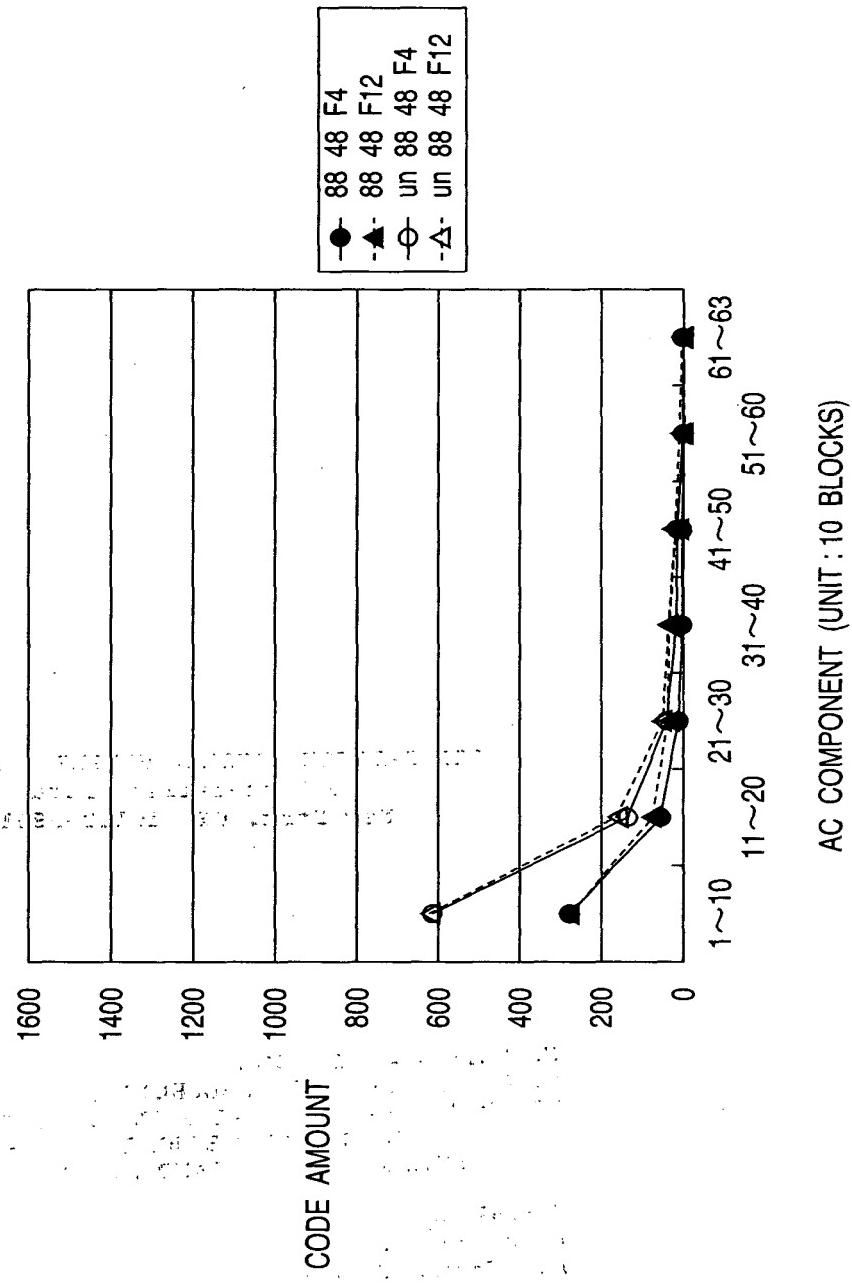
# FIG. 6<sup>3</sup>

DCT CHARACTERISTIC COMPARISON BETWEEN QUANTIZATION  
FILTER VALUE AND UNSHARP MASK PROCESS (44\*24 SIZE)



**FIG. 64**

DCT CHARACTERISTIC COMPARISON BETWEEN QUANTIZATION  
FILTER VALUE AND UNSHARP MASK PROCESS (88\*48 SIZE)



**F I G. 65**

	QUANTIZATION FILTER		
	$\leq 500$	500 <	1000 <
~6 BLOCK	MIDDLE	STRONG	STRONG
~20 BLOCK	WEAK	MIDDLE	STRONG
~66 BLOCK	-	WEAK	MIDDLE

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**F I G. 66**

	FLESH COLOR REGION LUMINANCE RANGE		
	$80 \leq$	$80 <, \leq 150$	$150 <$
STRENGTH	WEAK	MIDDLE	STRONG